

ACT COURSE BOOK

Math 1:

ACT Math Strategies

Inside the ACT Math Section

What is the structure of the Math Section?

- There section is ____ minutes and ____ questions long.

What areas of math are covered on the test?

- Arithmetic
- _____
- _____
- _____

How does the difficulty level work?

- Difficulty level *generally* increases as you proceed through the section, but tough questions can jump in early and easy questions can pop in late.

What's the best way to manage my time?

- It's not about completing every question in order. Try making it a *two lap journey*.
- In *lap 1*, search for and attack only the questions you know for sure. Skip the others.
- In *lap 2*, use the time you have left to focus on select ones that you have skipped.

The plus/minus system

- Next to any problem you have skipped in 'lap 1', put a *plus sign* or a *minus sign*.
- Use the *plus sign* if you are skipping a problem but have some clue as to how to tackle it.
- Use a *minus sign* for problems that make you feel mostly or totally lost.
- These *plusses* and *minuses* will organize the right plan for 'lap 2'

Math Section General Strategy

Did you know that there's many ways around tough ACT math problems besides . . . well . . . math?

In fact, the *textbook math* you've learned in school is not always the best way to tackle a problem. Now we'll learn 4 important paths *around the textbook math* . . .

4 ACT Math Strategies

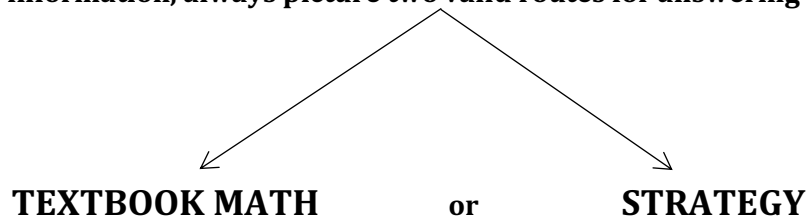
1. _____

2. _____

3. _____

4. _____

Given the above information, always picture two valid routes for answering math questions.



- You will maximize your score when you learn *how* and *when* to use BOTH routes!

Math Section General Strategy

Choosing Numbers

Choosing numbers means _____

Be sure to consider _____

You can choose numbers when _____

TRY IT OUT: What concrete number can you choose for each abstract circumstance:

- "Some number x " _____
- "The cost of a television" _____
- "An even number y " _____
- "Jeff earns some hourly wage" _____
- "For all values of x such that $x > 4$ " _____
- "Negative integers x and y " _____

1. For all values of x , the expression $x^3 + 7x^2 + 10x$ is equivalent to which of the following?

- A. $(x+2)(x-5)$
- B. $x(x+2)(x-5)$
- C. $x(x-2)(x-5)$
- D. $x(x+2)(x+5)$
- E. $x(x-2)(x+5)$

3. A pilot increases a plane's initial speed by 10%. The pilot then increases *this speed* by another 25% and maintains this final speed. The final speed of the plane is what percent greater than the initial speed?

- A. 25%
- B. 35%
- C. 37.5%
- D. 42.5%
- E. 47.5%

2. Circle A has radius 3 times the radius of Circle B. What is the ratio of the area of circle A to the area of circle B?

- A. 3 : 1
- B. 1 : 3
- C. 9 : 1
- D. 1 : 9
- E. 27 : 1

4. Which of the following is the set of all real numbers x such that $x + 3 > x + 5$?

- A. The empty set
- B. The set containing all real numbers
- C. The set containing all negative numbers
- D. The set containing all nonnegative numbers.
- E. The set containing only zero.

Math Section General Strategy

Work Backwards

Working backwards means _____

You can work backwards when _____

TRY IT OUT: Which circumstance is tough enough that you might want to work backwards?

- In the equation $2x + 5 = 13$, the value of x is
 - A. 2
 - B. 4
 - C. 6
 - D. 8
 - E. 10
- Let $\frac{x+1}{x-2} + \frac{x+3}{x-4} = -2$. The value of x is
 - A. 0
 - B. 1
 - C. 2
 - D. 3
 - E. 4

5. What **2 numbers should be placed** in the blanks below so that the difference between consecutive numbers is the same?

19, _____, _____, 37

- A. 24, 29
- B. 25, 31
- C. 25, 32
- D. 26, 31
- E. 26, 32

7. Which of the following is the solution set to the system of equations:

$$4x + 8y = 32$$

$$x - 3y = -7$$

- A. (-2, -3)
- B. (2, -3)
- C. (-1, 3)
- D. (1, 3)
- E. (2, 3)

6. Which of the following is a solution to the equation $x^3 + 10x^2 + 29x + 20 = 0$

- A. -4
- B. -2
- C. 0
- D. 1
- E. 2

8. The cost of one adult movie ticket and one child movie ticket is \$16.75. The cost of one adult movie ticket and two child movie tickets is \$24.00. **The cost of an adult movie ticket is**

- A. \$9.00
- B. \$9.50
- C. \$10.00
- D. \$10.50
- E. \$11.00

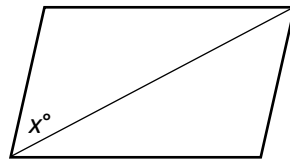
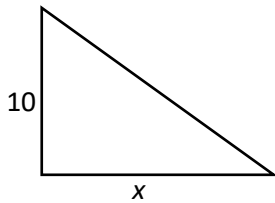
Math Section General Strategy

Eyeballing

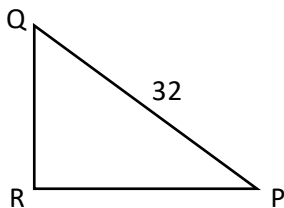
Eyeballing means _____

You can use this strategy when _____

TRY IT OUT: Whether x is a length, an angle, or an area, simply try to visually estimate!

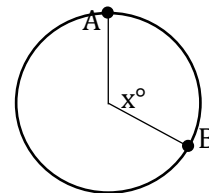


9. The hypotenuse of the right triangle PQR shown below is 32 feet long. The sine of angle P is $\frac{3}{5}$. Approximately how many feet long is line QR?



- A. 16
- B. 19.2
- C. 24.8
- D. 28.6
- E. 31.2

10. The circle below has area 144π . Arc AB has length 8π . What is the value of x ?



- A. 90
- B. 100
- C. 120
- D. 130
- E. 150

Math Section General Strategy

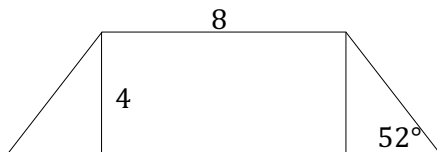
Eyeballing

11. Points B, C and D lie on line segment AE as shown. \overline{AE} is 100 units long. \overline{AD} is 90 units long. \overline{BE} is 80 units long. \overline{CE} is 50% longer than \overline{AB} . How many units long is BC?



- A. 20
- B. 40
- C. 50
- D. 60
- E. 70

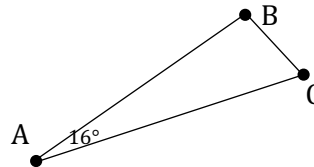
12. Figure ABCD is a trapezoid with two right triangles, $\triangle ABE$ and $\triangle CDF$, inscribed. Dimensions in feet are shown.



The approximate area of ABCD in square feet is

- A. 24.25
- B. 32
- C. 38
- D. 44.25
- E. 88.5

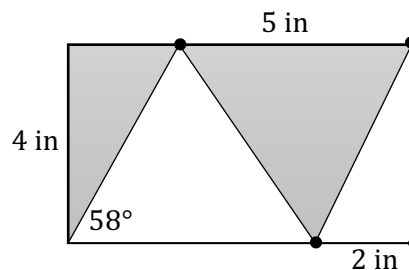
13. Three radio towers labeled A, B, and C are shown below. The distance between towers A and B is 14 miles. The distance between towers A and C is 16 miles.



The distance between towers B and C is represented by which of the following?

- A. $16^2 - 14^2 + 224\cos 14$
- B. $14^2 + 16^2 - 448\cos 14$
- C. $\sqrt{16^2 - 14^2 + 224\cos 14}$
- D. $\sqrt{14^2 + 16^2 - 224\cos 16}$
- E. $\sqrt{14^2 + 16^2 - 448\cos 16}$

14. The rectangle shown in the figure below is partitioned into 3 triangles, 2 of which are shaded. The dimensions of certain triangle sides are shown. What is the approximate total area of the shaded regions in square inches?



- A. 10
- B. 18
- C. 20
- D. 22
- E. 32

Math Section General Strategy

Make a picture

Making a Picture means _____

Use this strategy mainly for _____

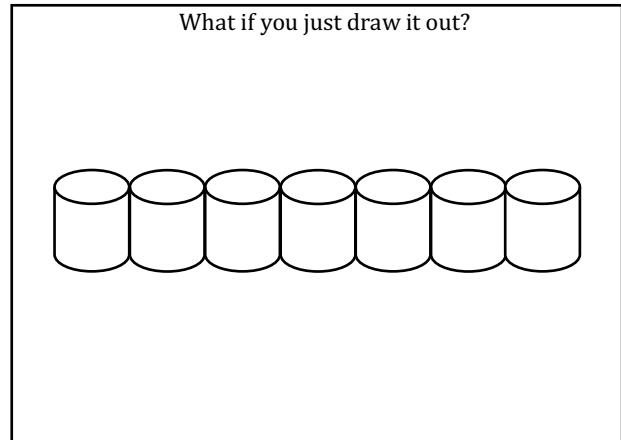
Extra Tip: _____

TRY IT OUT: Is the question below more of a math problem or a riddle?

- A bag contains 50 marbles. John must distribute all marbles among 7 glasses. He must place at least one marble in each glass. Every glass after the first must be filled with more marbles than the previous. If John completes the task following all guidelines, what is the maximum number of marbles that could be in the 2nd to last glass he fills?

- A. 17
- B. 18
- C. 29
- D. 30
- E. 44

→



- 15.** Six points lie in a plane. No three points lie on the same line. How many distinct lines can be drawn to connect pairs of these 6 points?

- A. 6
- B. 12
- C. 15
- D. 21
- E. 30

- 16.** A computer is continuously repeating the sequence corresponding to the first six letters of the alphabet as follows: "ABCDEFABC..."

What is the 195th letter of the sequence?

- A. "A"
- B. "B"
- C. "C"
- D. "D"
- E. "E"

Reading 1:

The 5 Wrong Answer Types and Mapping the Passage

Inside the ACT Reading Section

What is the structure of the reading section?

- 4 passages – 1 fiction, 1 social studies, 1 humanities, 1 natural science (always this order)
- 10 questions per passage
- One of the passages will be a 2 author compare/contrast

How does the difficulty level work?

- The difficulty level of the passages does not increase as you go through the section
- The difficulty level of the questions comes in no specific order.
- On the other hand, there may be a passage type (i.e. social studies) you like least. You may choose to skip a certain passage type and save it for last.

Dealing with a difficult pace:

- You only have 35 minutes to tackle the 4 passages – a tough pace to pull off for many
- There are two pacing options to try out
 - Option 1 – Equal time to each passage
 - Option 2 – Focus on 3 passages only

ACT Reading Passages

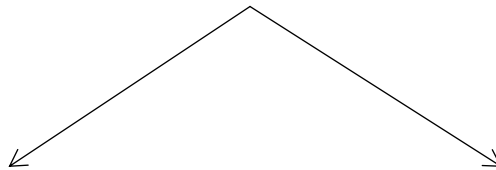
Finding the wrong answer

- Our first goal is to make you an expert on finding the *wrong answers* on ACT passage questions.
- The test writer actually has a repetitive formula for writing wrong answers.
 - Every wrong answer can be lumped into one of five types
 - Knowing the wrong answer types means being able to avoid them!

- The Test-Maker's Wrong Answer Types:

- (1) _____
- (2) _____
- (3) _____
- (4) _____
- (5) _____

- Given this new information, you now have two valid routes for answering passage questions,



Traditional route: Predict a reasonable answer, and select the answer closest to that prediction:

The question in lines 4-5 is based on which of the following assumptions?

- (A) Direct observation is the only reliable method of conducting sleep research
- (B) People will yawn most frequently in the moments before they fall asleep.
- (C) **There is a direct correlation between yawning and sleepiness.**
- (D) Yawning is a behavior over which individuals exert little conscious control.
- (E) Conducting sleep research is a time-consuming process.

Elimination Route: Eliminate the four wrong answers and select what remains:

The question in lines 4-5 is based on which of the following assumptions?

- ~~(A)~~ Direct observation is the only reliable method of conducting sleep research
- ~~(B)~~ People will yawn most frequently in the moments before they fall asleep.
- (C) **There is a direct correlation between yawning and sleepiness.**
- ~~(D)~~ Yawning is a behavior over which individuals exert little conscious control.
- ~~(E)~~ Conducting sleep research is a time-consuming process.

- The best test-takers keep both routes in mind and even use them in combination.

ACT Reading Passages

Finding the wrong answer

NOT IN PASSAGE

- This is the wrong answer that brings up information _____
- This wrong answer type was made to snare the students who lose sight of the passage. Don't be tempted. A choice that's factually correct is still wrong if it's *not in passage*.
- This is the most common type of wrong answer.

OPPOSITE

- This is the wrong answer that brings up information _____
- This choice was designed to snag the speed-reader. It only takes changing one word (*is to isn't*, *will to won't*) to create an OPPOSITE. Gloss over just one word and you fall into this trap.

EXERCISE: Look for the **ONE WRONG WORD**. Label wrong choices as either 'NOT IN PASSAGE' or 'OPPOSITE'. Often this takes just *one wrong word*!

High diving is a sport, the oldest form of which can be dated back to 1770, when Kahekili II, king of Maui, forced warriors to dive into water from high cliffs to prove that they were courageous and loyal to the king. The practice later developed into a type of performance under King Kamehameha, in which divers attempted to outdo one another in terms of style and amount of splash upon entering water. The more modern form of high diving was, at first, exclusively practiced by gymnasts who found it to be an exciting endeavor with a low probability of injury. Before too long, it evolved into an official sport when it debuted as a series of Olympic events in the early 1900s. Today, high diving competitions occur all throughout the world, some involving dives by professionals from heights of 100 feet or more.

These passages and questions in this lesson do not represent what you will see on the test. These were specifically designed as a tool to help teach this lesson efficiently.

- The primary purpose of the passage is to
 - contrast the popularity of one set of sports to that of another set of sports.
 - explain the different methods by which athletes train for a rarely practiced sport.
 - discuss how a particular sport has been performed according to a specific set of rules.
 - defend one theory about the origins of Olympic sports.
 - trace the history of a particular sport from its earliest roots to the current day.
- Based on the information in the passage, the author would most likely agree with which of the following?
 - Olympic high diving gold medalists had to train from a very early age.
 - It is not well-understood where and when high diving first developed.
 - High diving began as a practice that displayed one's valor and devotion.
 - Formal high diving competitions began prior to the 1900s.
 - High diving is one of many sports that gymnasts turn to for alternative training.

ACT Reading Passages

Finding the wrong answer

WRONG PART

- This choice brings up info _____
- WRONG PARTs were designed to get students who forget the question. A second or even third read of a question is not a bad idea!

EXTREME

- EXTREMES are simply _____
- EXTREMES contain words that are **too emotional**: *attack, condemn, criticize, bemoan, mock, laud*
- EXTREMES contain words that are **too absolute**: *all, none, everyone, no one, always, never*
- Much like an OPPOSITE, it only takes one wrong word to create an EXTREME.

EXERCISE: Look for the **ONE WRONG WORD** that allows you to mark a choice as one of our *wrong answer types*.

Burj Khalifa is a mega-tall skyscraper in Dubai, United Arab Emirates. It is the tallest artificial structure in the world, standing at 2,722 ft. A buttressed core structural system is used to support the height of the building. A total of 57 elevators and 8 escalators are installed, with elevators having capacity of 12 to 14 people per cabin. Construction of Burj Khalifa began in 2004, with the exterior completed in 2009. The building opened in 2010 as a part of the new development called Downtown Dubai. It is designed to be the centerpiece of large-scale, mixed-use development. The decision to construct the building is reportedly based on the government's decision to diversify from an oil-based economy, and for Dubai to gain international recognition.

- Lines 3-7 ("A buttressed core . . . people per cabin") serve to
 - discuss the reasons for the construction of a major skyscraper.
 - criticize a particular design plan proposed for the Burj Khalifa.
 - provide detail on the location and height of Dubai's most famous structure.
 - explain some physical characteristics of a significant building in Dubai.
 - explain the sole purpose of the buttressed core structural system in the Burj Khalifa.
- Based on the information in the passage, the author would most likely agree with which of the following?
 - Only an oil-based economy would have the means to create a structure like the Burj Khalifa.
 - The Burj Khalifa will be the most influential factor in the diversification of Dubai's economy.
 - A possible reason for the construction of the Burj Khalifa was worldwide acknowledgment.
 - To date, there are no other building projects in Dubai as impressive as the Burj Khalifa.
 - The architects who designed the Burj Khalifa gained global recognition.

ACT Reading Passages

Finding the wrong answer

TWISTED FACT

- TWISTED FACTS take information _____
 - Some TWISTED FACTS incorrectly merge multiple facts from the passage
 - Some TWISTED FACTS are choices that start off perfect, then veer off course

- TWISTED FACTS were designed to snag those that are too quickly satisfied with *one piece of a choice*, and jump to it. Take in every word of every choice!

EXERCISE: Look for the **ONE WRONG WORD** that allows you to mark a choice as one of our *wrong answer types*.

5 The house at 213 Myrtle Street wore an
 enchantment that could obscure it when it so desired.
 This was a handy skill, particularly when salesmen
 roved the streets or teenagers skulked about after
 5 dark, eggs in hand. Now there was a realtor at the
 gate. The smell of dozens of strange, foreign houses
 clung to her cloths. The house ached in its
 abandonment. Mrs. Leech was gone. A stranger had
 to lock the door behind Mrs. Leech when she last left
 10 the house, still asleep as she was rolled along on a
 strange wheeled bed. They shared a comfortable
 existence together, woman and house. Mrs. Leech had
 been a mere slip of a girl when her family moved into
 213 Myrtle, the place still ripe with fresh paint and cut
 15 lumber. Her parents left, then her husband but Mrs.
 Leech stayed. Her bones creaked along with the
 settling of the pipes at night. The house did not want
 a new owner.

5. Which choice best describes what happened in the passage?
 - (A) A house that seems to possess human emotion becomes enchanted as a result of the departure of its owner.
 - (B) A realtor is attempting to sell a magical house that is saddened by the sudden departure of the large family that lived there
 - (C) A house with unusual powers and perception is left feeling lonely after the long history of its owner comes to a melancholy end.
 - (D) A house located at 213 Myrtle Street recalls its former owner who left due to the actions of a local realtor.
 - (E) An enchanted house was once occupied by a character named Mrs. Leech who deals with her sadness at having to move away to another home.

6. In lines 3-4, the author discusses the “salesman and teenagers” to indicate
 - (A) a major reason why Mrs. Leech decided not to live at 213 Myrtle any longer
 - (B) examples of people who are trying to avoid 213 Myrtle
 - (C) two types of people who were never able to see 213 Myrtle as a result of its enchantment
 - (D) situations when the house would obscure itself in order to create more comfortable existence
 - (E) how certain undesirable people would not notice 213 Myrtle unless Mrs. Leech allowed them to

Mapping the Passages

- So far, we've only really looked at the *questions* themselves. But what about dealing with the passage?
- Just reading the passage is too passive. What we call **mapping the passage** is an active approach:
 - Pretend each paragraph is a mini-passage.
 - Make your goal with each 'mini-passage' to jot down its main idea in the margin – just 3 or 4 words will do!
 - All the little details? Read them, but don't obsess. It's all about *main ideas*.
- **Mapping** takes up valuable time, so what will it do for me?
 - What eats up more time than note-taking is zoning out and having to go back and reread – **passage mapping** will prevent this!
 - The time you spent taking **passage mapping** will heighten your overall comprehension, which will speed you up in the following questions.
 - Many detail questions on the ACT don't give you line numbers which means you'll have to hunt for facts. **Passage mapping** might speed up the hunt.

'Speed Reading'

- Combine **mapping** and '**speed reading**' – Finishing the ACT Reading may require a little cutting corners. Once you feel you've hit the **main ideas** you want to map, push the pace a bit through the less vital details.

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*Exception to this format – Fiction Passages

Reading 2: The 5 Question Types

The 5 Critical Reading Question Types

- In the previous lesson, we saw how passage wrong answers can be lumped into one of 5 main types. Passage questions also come in 5 types, which are listed below.

The test-maker's 5 critical reading question types:

Content Questions	<p>Whole Passage – Questions about the passage as a whole <i>“The primary idea in . . .”</i></p> <ul style="list-style-type: none"> ▪ The correct answer involves _____ ▪ Most common wrong answer type here: _____
	<p>Specific Information – (low to medium difficulty) <i>“In lines 32-36. . .”</i></p> <ul style="list-style-type: none"> ▪ These are a test of research. Don’t just read cited lines, read _____ cited lines
	<p>Language in Context – (medium to high difficulty) <i>“The word . . . most nearly means”</i></p> <ul style="list-style-type: none"> ▪ The trick: take your answer choice and _____ ▪ Avoid choices that reflect the _____
Logic Questions	<p>Author’s Purpose – (medium to high difficulty) <i>“. . . serves to/in order to”</i></p> <ul style="list-style-type: none"> ▪ The correct answer is not about <i>what was said</i>, but _____
	<p>Making Inferences – (high difficulty) <i>“suggests/implies/most likely means”</i></p> <ul style="list-style-type: none"> ▪ The correct answer is not about <i>what was said</i>, but _____ ▪ Most common wrong answer type here: _____

The 5 Critical Reading Question Types

- **Whole Passage** – Questions about the passage as a whole (easy/medium difficulty)

- How to identify them: _____

- How to answer them: _____

- **Specific Information** – questions about what was said at a particular point (easy/ medium)

- How to identify them: _____

- How to answer them: _____

EXERCISE: Identify each of the question types below and approach them as directed. At the same time, identify wrong answer types!

5 The American Civil War was fought from 1861 to 1865 to determine the survival of the Union for the independence for the Confederacy. Among the 34 states in January 1861, seven Southern slave states individually declared their secession from the United States and formed the Confederate States of America. The *Confederacy*, often simply called the *South*, grew to include eleven states, and although they claimed thirteen states and additional western territories, the

10 Confederacy was, for the most part, not diplomatically recognized by foreign countries. By contrast, the states that remained loyal and did not declare secession were known as the *Union* or the *North*. The war had its origin in the factious issue of

15 slavery especially the extension of slavery into the western territories. After four years of combat, which had left around 750,000 Americans dead and had destroyed much of the South's infrastructure, the Confederacy collapsed and slavery was abolished. Then began 'The *Reconstruction*'.

1. The primary purpose of the passage is to
 - (A) outline the many root causes of a nation-wide conflict.
 - (B) explain the devastating effects of a war fought on American soil.
 - (C) provide an overview of the geographical makeup of the U.S. prior to the Civil War.
 - (D) describe a rift between a two parts of a nation and the war that resulted
 - (E) discuss how historians view a major conflict and its lasting effects on a nation
2. Lines 7 – 11 ("The Confederacy.....by foreign countries") begin a comparison between
 - (A) the territories *The Confederacy* claimed and how all foreign countries viewed these claims.
 - (B) eleven states in one region of a nation and thirteen western territories in another.
 - (C) the factors that led to the split between the northern and southern U.S. and the factors that held them together.
 - (D) two geographic regions of the United States that stood in opposition.
 - (E) an issue that fractured a nation and the four-year war that resulted.

The 5 Critical Reading Question Types

- **Language In Context** – asks the meaning of a single word *in context* (medium difficulty)

- How to identify them: _____

- How to answer them: _____

EXERCISE: Answer each language in context question below as just directed.

Star Wars episodes I, II, and III, released about two decades after the original Star Wars trilogy received a flood of criticism by reviewers and movie-goers. While some condemned the new series for its plot holes and lackluster acting, others were embittered because it seemed geared more towards today's children than the adults who grew up with the original stories.

3. In context, the word “flood” in line 3 most closely means

(A) monsoon
(B) inundation
(C) scarcity
(D) significance
(E) vitality

4. In context, “embittered” in line 5 most closely means

(A) ambivalent
(B) sour
(C) resentful
(D) alienated
(E) callous

The 5 Critical Reading Question Types

- **Author's Purpose** – ask you *why* the author stated something (medium /hard)

- How to identify them: _____

- How to answer them: _____

- **Making Inferences** –*logically infer* information about the passage or the author (hard)

- How to identify them: _____

- How to answer them: _____

5 In 1843, Augusta Ada King published an influential set of notes describing Charles Babbage's conception of an "analytical engine" – the first design for an automatic computer. King's notes, which included her program for computing a series of figures called Bernoulli numbers, established her importance in computer science. However, her fascinating life and lineage (she was the daughter of the flamboyant poet Lord Byron) – and her role as a female pioneer in her field – have turned her into an icon. She has inspired biographies, plays, novels, and even a feature film. Whereas many women have helped to advance computer science, only King has had a computer language named after: Ada.

5. The statement in lines 8-9 ("she was the ... poet Lord Byron") serves to
 - (A) explain the role Lord Byron played in supporting King's curiosity with computer science.
 - (B) show how her family background played a part in developing King's fame.
 - (C) emphasize the stark difference between King's interests and those of her parents.
 - (D) contradict accepted views about the role of women in computer science.
 - (E) describe the most fascinating aspect of King's lineage and how it helped establish her as an icon.
6. The author of the passage would most likely agree with which of the following statements about Augusta Ada King?
 - (A) Her family history plays no part in the fascination she arouses.
 - (B) Her contributions to computer science were unsurpassed by those of any other computer scientist.
 - (C) Interest in her has spread throughout popular culture.
 - (D) She was instrumental in the establishment of Bernoulli numbers.
 - (E) King's scientific interests spanned beyond the field of computer programming.

The 5 Critical Reading Question Types

- Let's summarize. Here are the 5 critical reading question types:
 - (1) **Whole Passage** – concern the *whole passage*
 - (2) **Specific Information** – concern a particular point
 - (3) **Language In Context** – concern the meaning of a single word *in context*
 - (4) **Author's Purpose** – concern not what was said but *why something was said*
 - (5) **Making Inferences** – concern not what was said but *what can be inferred* from it

- **EXERCISE:** Success starts with knowing your *terrain*. Can you identify each question type?
 - *The primary purpose of the passage is to*
 - *Which of the following is used in the 2nd paragraph?*
 - *In lines 45-53, the author argues that*
 - *The author discusses the "historical issue" (line 50) primarily to make the point that*
 - *The author mentions the "thoughts of the outsiders" (line 20) to emphasize that*
 - *In line 58, "fueling" most nearly means*
 - *The main idea of the passage is*
 - *The author of passage 1 would most likely regard lines 81-83 ("With . . . them") as evidence of*
 - *It can be inferred that the author considers "misunderstood creations" to have been*
 - *The primary purpose of the 3rd paragraph is to*
 - *Both authors would most likely agree that*
 - *The passage as a whole is best characterized as*
 - *The comment between the dashes in lines 9-11 primarily serves to*
 - *The details of Smith's life are covered in paragraph 4 in order to*

The Overall Approach to ACT Reading

MAP each paragraph of the passage

- Note the **main point** of each paragraph in the margin.

Know the Question Types

- **Whole Passage** *"The primary purpose of the passage is"*
 - The answer should encompass the *whole passage*, not just a piece.
 - Watch out for WRONG PARTS
- **Specific Information** *"In lines 32-36, the author distinguishes between"*
 - Be thorough: research not just *in* but also *around* the cited lines.
- **Language in Context** *"The word 'parade' in line 71 most nearly means"*
 - Plug the choice you like right into the passage – is it a *perfect* fit?
 - Avoid the common meaning of the word in question
- **Author's Purpose** *"The author added the quote in line 9 in order to"*
 - The answer is not about *what* was said, but *why* something was said.
- **Making Inferences** *"The author would most likely agree with"*
 - The answer is not about *what* was said, but what can be *inferred* from what was said.
 - Watch out for EXTREMES

Know the WRONG answer types:

- **Not in Passage** - Info never discussed in the passage
- **Opposite** – opposite the passage info or author's tone/opinion
- **Wrong Part** – info discussed in the passage but inconsistent with the question
- **Extreme** – too strong in *amount* or in *emotion*
- **Twisted Fact** – facts from the passage twisted in some way

Paired Passage Mini-Method

- One of the 4 ACT Passages will be a **paired passage** with:
 - **Single Passage Questions** – questions concerning *one and only one* author
 - **Dual Passage Questions** – questions comparing *both* authors' viewpoints
- One last mini-method to tack on for this task:
 - **Read author 1 only and answer author 1's questions**
 - **Read author 2 only and answer author 2's questions**
 - **Save compare/contrast questions for last.**

Science 1: Experiment Passages

Science Section General Strategy

The ACT Science Section Structure:

- You have _____ minutes to complete _____ questions.
- The questions fall into 6 passages
 - 5 “Experiments” (33 out of the 40 questions)
 - 1 “Conflicting Viewpoints” (7 out of the 40 questions)

Do I need to be strong in science to succeed on the ACT science? Yes / No

- The majority of questions in this section actually test your ability to _____
- Generally no more than 3 questions give or take require any outside scientific knowledge.

How does the difficulty level work?

- Some passages are harder than others but there is no specific rule as to where the tough ones lie.
- The “Conflicting Viewpoints” Passage is generally the most time-consuming of all.

Dealing with a difficult pace:

- 35 minutes for 6 passages is tough – it’s completely normal not to finish
- There are two pacing options to try out
 - Option 1 – Complete all 6 passages.
 - Option 2 – Focus the 5 experiments only.

Experiment Passage Strategy

Experiments comprise ____ out of the 6 passages, and ____ out of the 40 questions

THE PRIMARY METHOD on any ACT Experiment Passage looks like this:

1. _____

2. _____

3. _____

DIFFICULTY LEVEL of Experiment questions grows when you add _____

1. _____

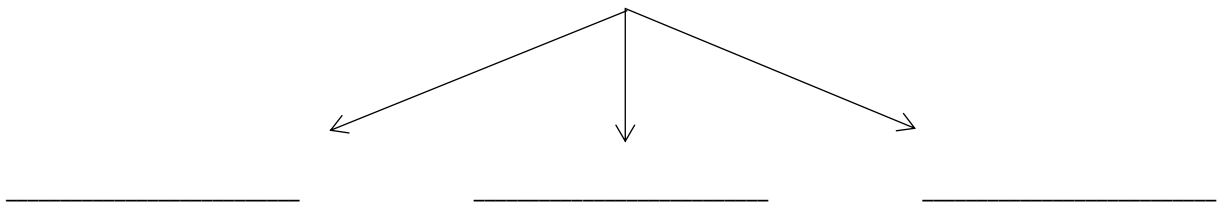
2. _____

3. _____

4. _____

5. _____

Challenge factors allow us to separate questions into three levels of difficulty



Experiment Passage Strategy

The Primary Method

We'll explore the primary method in Experiment Passages using the sample passage below.

Passage VI

The *ideal gas law* (IGL) describes the physical behavior of gases. Although ideal gases do not exist, the IGL is a useful model for many real gases. A researcher used the IGL to predict trends in the pressure of an ideal gas under various sets of conditions. Then, the researcher performed 3 experiments to compare the IGL predictions with trends in the pressure of each of 2 real gases (Gas Y and Gas Z) under the same sets of conditions. The conditions that were varied for an ideal gas, for Gas Y, and for Gas Z were the following:

- The gas temperature, T (in kelvins, K)
- The amount of gas, n (in moles, mol; $1 \text{ mol} = 6.0 \times 10^{23}$ atoms or molecules), in a container
- The volume of the container, V (in liters, L)

Experiment 1

The pressure, P (in megapascals, MPa), of an $n = 1 \text{ mol}$ sample of Gas Y in a 1.0 L container was recorded for values of T from 200 K to 450 K. This procedure was repeated for Gas Z. Figure 1 shows the trends for the 2 gases. Also shown is the trend predicted by the IGL.

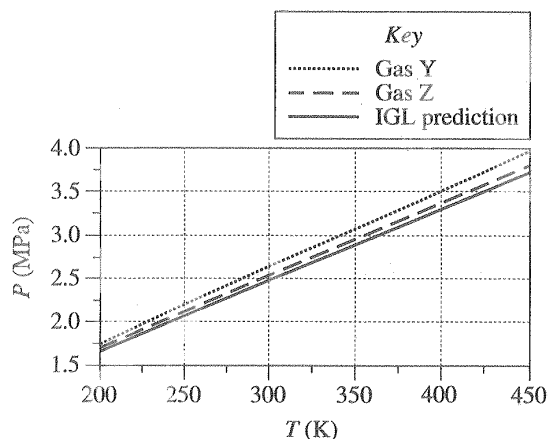


Figure 1

Experiment 2

The pressure, P , of a sample of Gas Y in a 1.0 L container was recorded for values of n from 1 mol to 10 mol, while T was held constant at 400 K. This procedure was repeated for Gas Z. Figure 2 shows the trends for the 2 gases and the trend predicted by the IGL.

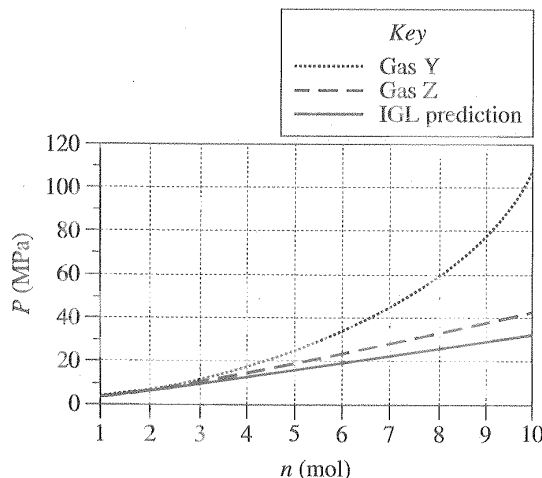


Figure 2

Experiment 3

The pressure, P , of an $n = 1 \text{ mol}$ sample of Gas Y in a container of adjustable volume was recorded for values of V from 0.5 L to 1.0 L, while T was held constant at 400 K. This procedure was repeated for Gas Z. Figure 3 shows the trends for the 2 gases and the trend predicted by the IGL.

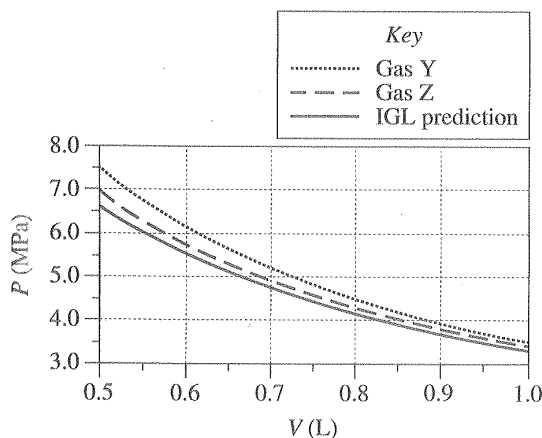


Figure 3

Experiment Passage Strategy

The Primary Method

The science section is not so much a test of reading comprehension, but rather _____

Devote your time not to reading the articles but rather to _____

Reading with targeting helps ensure an _____ with _____

- STOP↓** **STOP↓** **STOP↓**
1. Based on **figure 2**, the **pressure, P, of gas Y** when there were approximately **9 moles of gas Y** in the container was closest to
- (A) 100 MPa
 - (B) 78 MPa
 - (C) 39 MPa
 - (D) 28 MPa

The **STOP** signs are telling you it's time to TARGET data.

- STOP↓** **STOP↓** **STOP↓**
2. Based on **figure 3**, as the **volume of gas increases**, the difference pressures of **gas Z and the IGL prediction**
- (A) increases only.
 - (B) decreases only.
 - (C) increases, then decreases.
 - (D) decreases, then increases.

- STOP↓** **STOP↓**
3. A student predicted that, for **temperatures** between 200 K and 450 K, **all tested gases** would maintain a higher pressure than the IGL prediction. Do the results in **Figure 1** support this claim?
- (A) No, because gas Z maintained a lower pressure than the IGL prediction at all tested temperatures
 - (B) No, because both gases Y and Z maintained a higher pressure than the IGL prediction at all tested temperatures
 - (C) Yes, because gas Z maintained a lower pressure than the IGL prediction at all tested temperatures
 - (D) Yes, because both gases Y and Z maintained a higher pressure than the IGL prediction at all tested temperatures

- STOP↓** **STOP↓** **STOP↓** **STOP↓**
4. Based on **Figure 2**, **eleven moles** of a gas at **400K in a 1.0L** container exhibiting behavior exactly like that of **the IGL** would most likely have pressure
- (A) between 20 MPa and 30 MPa
 - (B) between 30 MPa and 40 MPa
 - (C) between 40 MPa and 50 MPa
 - (D) between 50 MPa and 60 MPa

Experiment Passage Question Types

Easy

Below is a sample experiment from a recent ACT

Passage II

Seven 4 g mixtures of glycerol and agar were prepared, each having a different percent glycerol by mass. A plastic film was made from each mixture; all the films were rectangular and had the same dimensions.

Each film was clamped and stretched (see Figure 1) at 25°C until it broke.

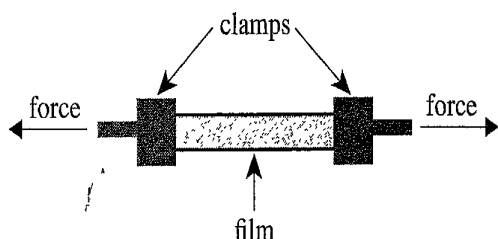


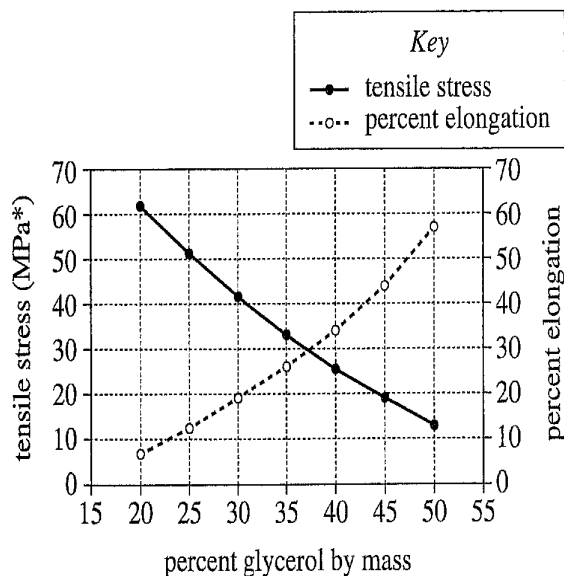
Figure 1

Three properties of the film were determined:

- *Tensile stress*, the force applied per unit area of the film as the film broke
- *Percent elongation*, given by:

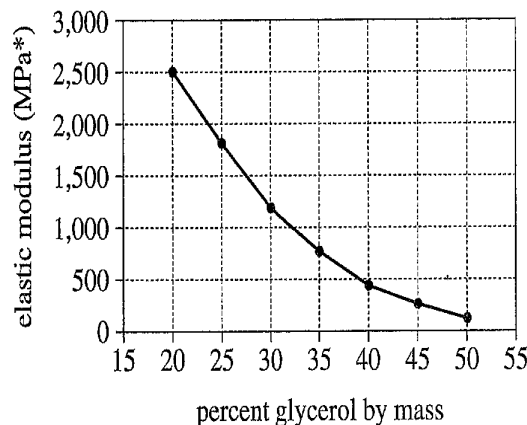
$$\frac{\text{final film length} - \text{initial film length}}{\text{initial film length}} \times 100$$
- *Elastic modulus*, a measure of the rigidity of the film

The results for all 7 films are shown in Figures 2 and 3.



*megapascals; 1 MPa = 10^6 newtons per meter squared (N/m^2)

Figure 2



*megapascals

Figure 3

Experiment Passage Question Types

Easy

- The most basic experiment questions simply require _____

- The only way to miss these is _____

5. According to Figure 2, when the percent glycerol by mass is 40%, the tensile strength is closest to

(A) 15 MPa
(B) 25 MPa
(C) 35 MPa
(D) 45 MPa

Some questions are geared toward **specific data points**.

6. Based on Figures 2, which of the following shows the tensile stress for the films made from mixtures that were respectively 20%, 30% and 40% glycerol by mass.

(A) 8 MPa, 34 MPa, 19 MPa
(B) 8 MPa, 19 MPa, 34 MPa
(C) 62 MPa, 26 MPa, 41 MPa
(D) 62 MPa, 41 MPa, 26 MPa

7. Based on Figures 2 and 3, as the percent glycerol by mass increased, the elastic modulus

(A) increased only.
(B) decreased only.
(C) increased, then decreased.
(D) decreased, then increased.

Some questions are concerned with **data trends**.

8. A student predicted that as the percent glycerol by mass decreased from 40% to 30%, the tensile strength would increase by less than 20MPa. Do the results shown in Figure 2 support this claim?

(A) **No**; the tensile strength increased from about **26MPa to about 51 MPa**
(B) **No**; the tensile strength increased from about **26MPa to about 41 MPa**
(C) **Yes**; the tensile strength increased from about **26MPa to about 51 MPa**
(D) **Yes**; the tensile strength increased from about **26MPa to about 41 MPa**

Note that YES/NO questions have long choices but these choices only differ by **a few words**. Just scan. Don't read.

Experiment Passage Question Types

Medium

Below is a sample experiment from a recent ACT

Passage II

Seven 4 g mixtures of glycerol and agar were prepared, each having a different percent glycerol by mass. A plastic film was made from each mixture; all the films were rectangular and had the same dimensions.

Each film was clamped and stretched (see Figure 1) at 25°C until it broke.

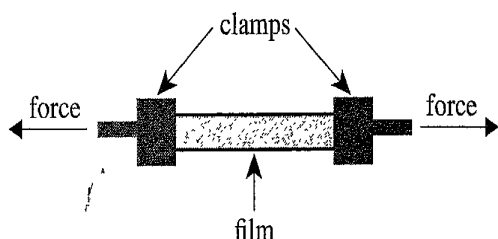


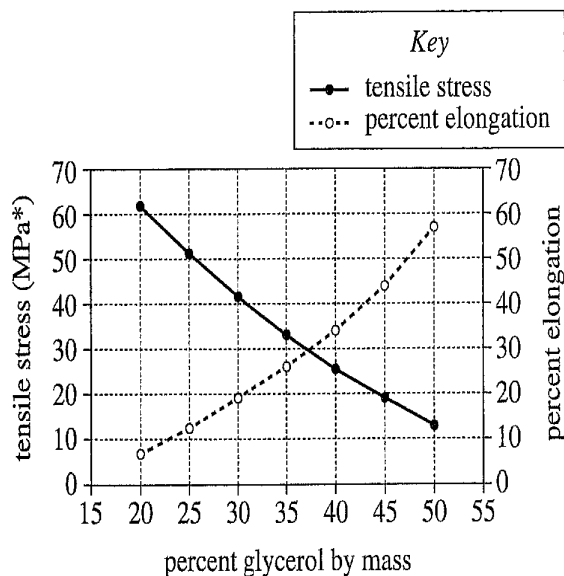
Figure 1

Three properties of the film were determined:

- *Tensile stress*, the force applied per unit area of the film as the film broke
- *Percent elongation*, given by:

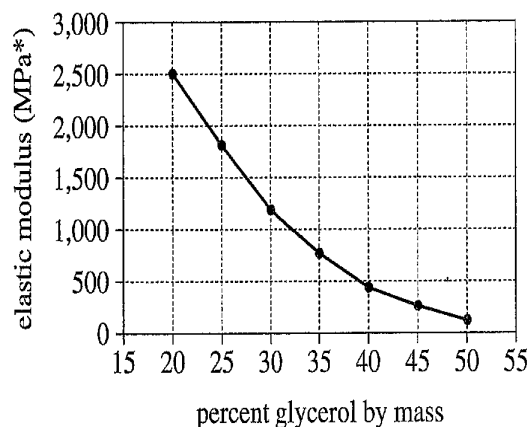
$$\frac{\text{final film length} - \text{initial film length}}{\text{initial film length}} \times 100$$
- *Elastic modulus*, a measure of the rigidity of the film

The results for all 7 films are shown in Figures 2 and 3.



*megapascals; 1 MPa = 10^6 newtons per meter squared (N/m^2)

Figure 2



*megapascals

Figure 3

Experiment Passage Question Types

Medium

An experiment question becomes medium level when it adds a _____

Our first **challenge factor** is _____

Key words in an extrapolation are _____

When extrapolating, you should: quickly grab a rough value / spend time being extremely accurate

9. **Suppose** a film made from a mixture that was 15% glycerol by mass had been tested. Based on figure 2, the percent elongation of the film would **most likely have been**:

(A) less than 8%
(B) between 8% and 35%
(C) between 35% and 62%
(D) more than 62%

Terms like “**Suppose**”, “**Most likely**”, and “**predicted**” are common in extrapolations.

10. **Suppose** that in the experiment, a piece of film was made to have a percent elongation greater than 60%. Then according to figures 2 and 3, the percent glycerol by mass of the mixture from which the film was made was **most likely**:

(A) less than 20%
(B) between 20% and 35%
(C) between 35% and 50%
(D) more than 50%

11. A strip of film made at 25° C from a 4g mixture of agar and glycerol that is 37.5% glycerol by mass would **most likely** have an elastic modulus of

(A) 250MPa
(B) 625MPa
(C) 950MPa
(D) 1275MPa

Here we have an **interpolation** – predicting a missing value between two existing data points.

12. **A student predicted that** if a piece of film made in this experiment broke at a tensile stress of 55MPa, it was made from a mixture that was at least 30% glycerol by mass. Do the results in Figure 2 support this claim?

(A) **No**, because a 30% glycerol by mass mixture produces film that breaks at a tensile stress **more** than 50MPa
(B) **No**, because a 30% glycerol by mass mixture produces film that breaks at a tensile stress **less** than 50MPa
(C) **Yes**, because a 30% glycerol by mass mixture produces film that breaks at a tensile stress **more** than 50MPa
(D) **Yes**, because a 30% glycerol by mass mixture produces film that breaks at a tensile stress **less** than 50MPa

Experiment Passage Question Types

Medium

Below is a sample experiment from a recent ACT

Passage II

Seven 4 g mixtures of glycerol and agar were prepared, each having a different percent glycerol by mass. A plastic film was made from each mixture; all the films were rectangular and had the same dimensions.

Each film was clamped and stretched (see Figure 1) at 25°C until it broke.

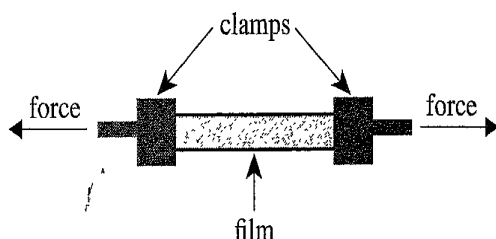


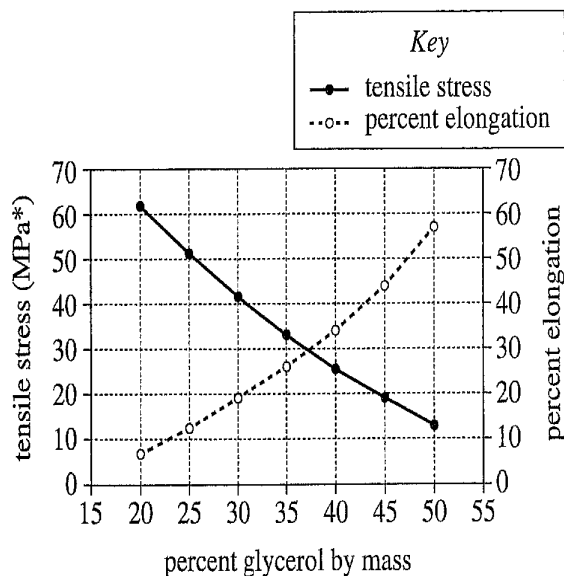
Figure 1

Three properties of the film were determined:

- *Tensile stress*, the force applied per unit area of the film as the film broke
- *Percent elongation*, given by:

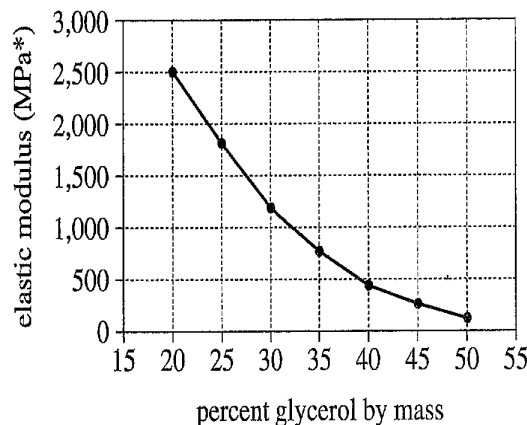
$$\frac{\text{final film length} - \text{initial film length}}{\text{initial film length}} \times 100$$
- *Elastic modulus*, a measure of the rigidity of the film

The results for all 7 films are shown in Figures 2 and 3.



*megapascals; 1 MPa = 10^6 newtons per meter squared (N/m^2)

Figure 2



*megapascals

Figure 3

Experiment Passage Question Types

Medium/Hard

Our second **challenge factor** is _____

A chart connection requires that you _____

13. At a temperature of 25°C, a particular piece of film w **elastic modulus** of 1700MPa. Based on figures 2 and 3, the **tensile stress** of this piece of film was closest to:
- (A) 10MPa
 - (B) 30MPa
 - (C) 50MPa
 - (D) 70MPa

These **two issues** are not in the same chart, but their 'connector' is _____

14. In the experiment, one piece of film made from a **4g mixture of glycerol and agar** had a percent elongation of 27%. The elastic modulus of this piece of film was
- (A) less than 500MPa
 - (B) between 500MPa and 1500MPa
 - (C) between 1500MPa and 2500MPa
 - (D) greater than 2500MPa

Quantities that are not in the chart are very often just blanket conditions of the entire experiment.

15. Based on figures 2 and 3, as the percent elongation of a piece of film decreases, the elastic modulus
- (A) increases only.
 - (B) decreases only.
 - (C) increases, then decreases.
 - (D) Decreases, then increases.

16. **Suppose** a film made from a mixture had a percent elongation that was greater than 70%. Then according to figures 2 and 3, the elastic modulus was **most likely**
- (A) greater than 2500MPa
 - (B) between 1500MPa and 2500MPa
 - (C) between 500MPa and 1500MPa
 - (D) less than 500MPa

Your first **high difficulty** question!
This question combines the challenge elements of **extrapolation** and **chart connection**.

Experiment Passage Question Types

Medium

Below is a sample experiment from a recent ACT

Passage II

Seven 4 g mixtures of glycerol and agar were prepared, each having a different percent glycerol by mass. A plastic film was made from each mixture; all the films were rectangular and had the same dimensions.

Each film was clamped and stretched (see Figure 1) at 25°C until it broke.

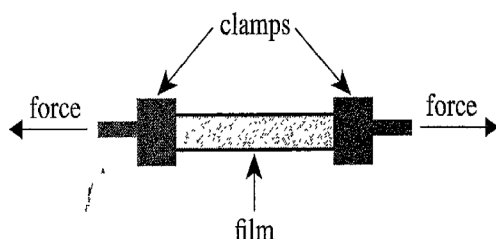


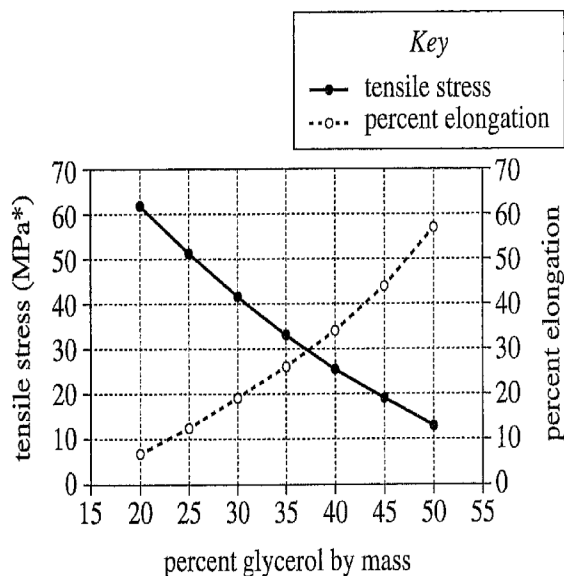
Figure 1

Three properties of the film were determined:

- *Tensile stress*, the force applied per unit area of the film as the film broke
- *Percent elongation*, given by:

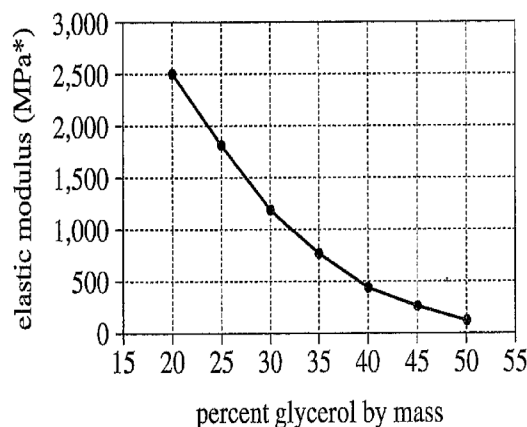
$$\frac{\text{final film length} - \text{initial film length}}{\text{initial film length}} \times 100$$
- *Elastic modulus*, a measure of the rigidity of the film

The results for all 7 films are shown in Figures 2 and 3.



*megapascals; 1 MPa = 10^6 newtons per meter squared (N/m^2)

Figure 2



*megapascals

Figure 3

Experiment Passage Question Types

Medium/Hard

Our third **challenge factor** is a _____

A key feature of a reading point is _____

When facing a reading point, you should: carefully read the whole article / skim for the point you need

17. Of the quantities **temperature** and **film dimensions**, which were held constant throughout the experiment?
- (A) Neither temperature nor film dimensions
 - (B) Temperature but not film dimensions
 - (C) Film dimensions but not temperature
 - (D) Both film dimensions and temperature

Temp and film dimensions are not chart quantities. The next move is to consult the article.

18. A strip of film from the experiment broke when the **force applied per unit area** was 19MPa. The elastic modulus of this piece of film must have been closest to
- (A) 2500 MPa
 - (B) 1200 MPa
 - (C) 300 MPa
 - (D) 100 MPa

A step up in difficulty - this question requires you to consult the reading and then move to a chart.

19. If the mixture contained no other substances besides glycerol and **agar**, then the piece of film that was made from the mixture containing 75% **agar** broke at a tensile stress closest to
- (A) 62 MPa
 - (B) 51 MPa
 - (C) 41 MPa
 - (D) 32 MPa

20. Suppose that the **rigidity** of a piece of film from the experiment could be quantified with a value greater than 2500 MPa. Its percent elongation was most likely
- (A) less than 8%.
 - (B) between 8% and 27%.
 - (C) between 27% and 58%.
 - (D) more than 58%

High level difficulty – combines two challenge elements: reading point and extrapolation.

Experiment Passage Question Types

Medium/Hard

Below is a sample experiment from a recent ACT

Passage II

Seven 4 g mixtures of glycerol and agar were prepared, each having a different percent glycerol by mass. A plastic film was made from each mixture; all the films were rectangular and had the same dimensions.

Each film was clamped and stretched (see Figure 1) at 25°C until it broke.

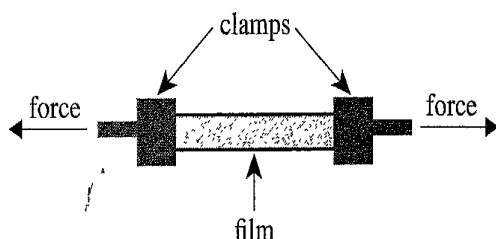


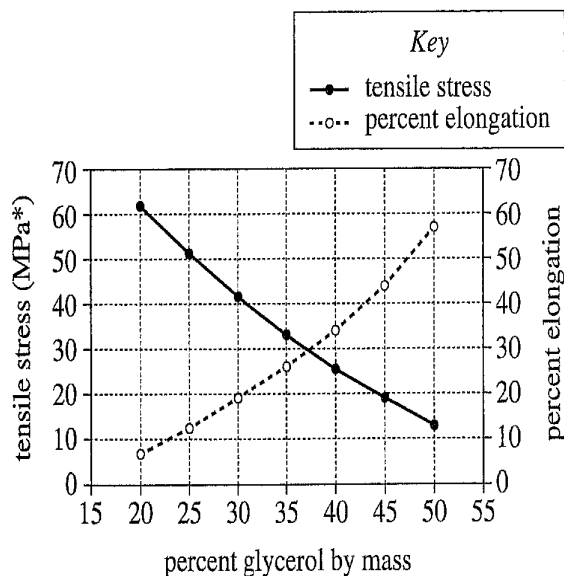
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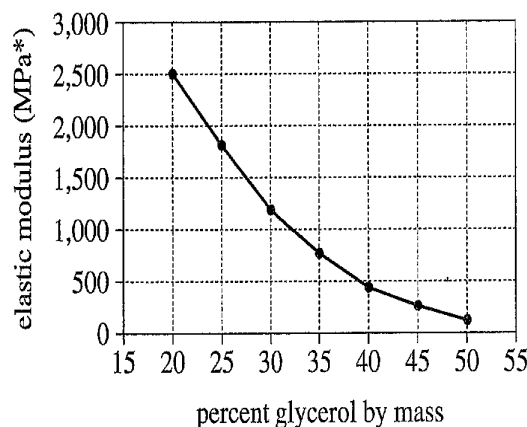
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The results for all 7 films are shown in Figures 2 and 3.



*megapascals; 1 MPa = 10^6 newtons per meter squared (N/m^2)

Figure 2



*megapascals

Figure 3

Experiment Passage Question Types

Medium/Hard

Our fourth **challenge factor** is called an _____

An outside element is _____

21. Based on Figure 2, as the **volume** of glycerol in a 4g mixture of glycerol and agar increases, the tensile stress of the film
- (A) increases only.
 - (B) decreases only.
 - (C) increases. then decreases.
 - (D) Decreases, then increases.

Volume is not a Figure 2 quantity, but it has a direct relationship with some Figure 2 quantity.

In this case,
As mass increases, volume _____

22. A student wants a piece of film composed of one of the mixtures from the experiment. If she needs the one with the greatest **flexibility** without breaking, then it should be fabricated from a mixture that has a percent glycerol by mass of
- (A) 20%
 - (B) 30%
 - (C) 40%
 - (D) 50%

23. Suppose that as a piece of rectangular film is elongated, the width remains unchanged. Based on figure 2, the piece of film that attains the smallest average **thickness** before breaking was made from a mixture with a percent glycerol by mass of
- (A) 20%
 - (B) 30%
 - (C) 40%
 - (D) 50%

Thickness is not a Figure 2 quantity, but it has an inverse relationship with some Figure 2 quantity.

In this case,
as length increases, thickness _____

24. Based on Figures 2 and 3, the elastic modulus of the piece of film that attained the greatest **length** prior to breaking was closest to
- (A) 200MPa
 - (B) 700 MPa
 - (C) 1700 MPa
 - (D) 2500 MPa

Here's a **high difficulty** question that mixes an **outside element** with a **chart connection**

Experiment Passage Question Types

Medium

Below is a sample experiment from a recent ACT

Passage II

Seven 4 g mixtures of glycerol and agar were prepared, each having a different percent glycerol by mass. A plastic film was made from each mixture; all the films were rectangular and had the same dimensions.

Each film was clamped and stretched (see Figure 1) at 25°C until it broke.

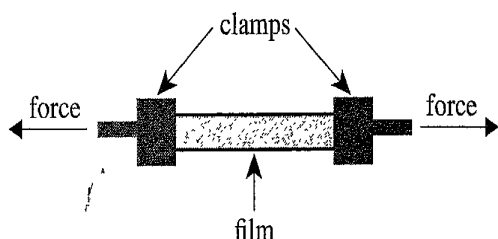


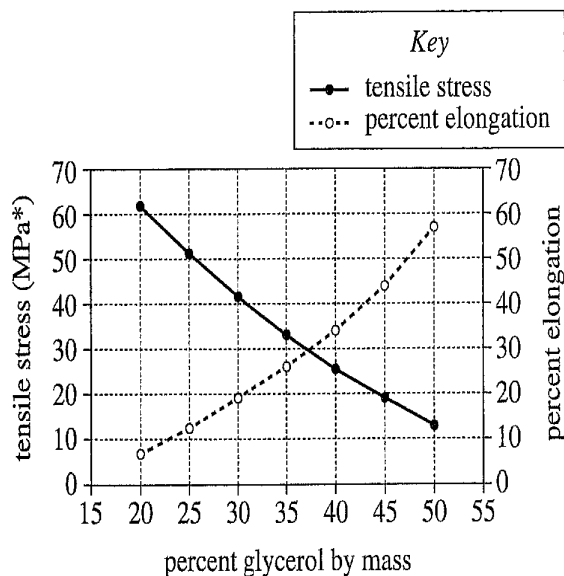
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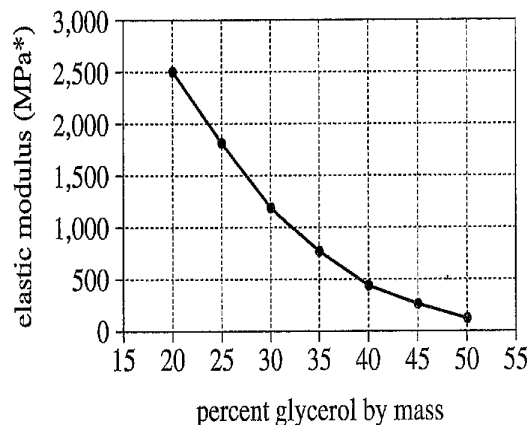
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The results for all 7 films are shown in Figures 2 and 3.



*megapascals; 1 MPa = 10^6 newtons per meter squared (N/m^2)

Figure 2



*megapascals

Figure 3

Experiment Passage Question Types

Medium

Turning up maybe only once on a test, our fifth challenge factor is a _____

A formula task only requires _____ and _____

The key feature of a formula task is _____

25. Given that that a film has initial length of 4.5 cm and a final length of 6.2 cm, the percent elongation of the film is given by which of the following expressions?

(A) $\frac{4.5mm - 6.2mm}{4.5mm} \times 100$

(B) $\frac{6.2mm - 4.5mm}{4.5mm} \times 100$

(C) $\frac{4.5mm - 6.2mm}{6.2mm} \times 100$

(D) $\frac{4.5mm - 6.2mm}{6.2mm} \times 100$

The choices tell you there's a formula somewhere in the article. Just scan for it and plug in. That's it.

26. Given that a film had an initial length of 4.5 cm and a percent elongation of 19%, the final length of the film must be closest to

- (A) 3.6 cm
(B) 5.4 cm
(C) 6.3 cm
(D) 7.2 cm

(E) Z
Z

If it's a little tougher, you may have to perform a simple calculation.

27. For any film, the tensile stress located in Figure 2 was most likely calculated using which of the following expressions?

- (A) (Force applied) x (Area of film)
(B) (Force applied) - (Area of film)
(C) $\frac{\text{Force applied}}{\text{Area of film}}$
(D) $\frac{\text{Area of film}}{\text{Force applied}}$

High difficulty: combines formula task and reading point

28. According to figure 2, a film with an elastic modulus of 2500 MPa will have a tensile stress closest to

- (A) 800,000 N/m²
(B) 8,000,000 N/m²
(C) 6,200,000 N/m²
(D) 62,000,000 N/m²

High difficulty: formula task, reading point, and chart connection all combined

Science 2:

The Conflicting Viewpoints Passage

Experiment Passage Strategy

The BASICS:

- There is only 1 Conflicting Viewpoints Passage comprising ____ out of the 40 questions on the section.
- Most commonly, you'll contend ____ conflicting viewpoints. There could be as many as ____ viewpoints.

THE FIRST RULE of the Conflicting Viewpoints Passage is _____

THE PRIMARY METHOD on the Compare/Contrast Reading involves reading in chunks:

1. _____
2. _____
3. _____

The SHORT-ON-TIME METHODS to scrape an extra point or two:

1. (3-4 minutes left) - _____

2. (1-2 minutes left) - _____

Experiment Passage Strategy

Take it in chunks. Read the Intro and Scientist 1 only – then scan for and answer Scientist 1 Questions

Passage V

Two scientists discuss whether a *snowball Earth* (Earth completely covered with glacial ice) existed from 710 million years ago (mya) to 700 mya, a period during which all the continents were located on or near the equator.

Scientist 1

A million years before 710 mya, glacial ice covered all of Earth's surface except the *low latitudes* (30°N to 30°S). Over the next million years, continuing rapid rock weathering in the low latitudes removed CO₂ from the atmosphere, and the ice at high latitudes reflected incoming solar radiation. Both processes cooled Earth, which allowed the ice to spread and cover the remainder of Earth's surface by 710 mya. Soon thereafter, the 1-kilometer-thick ice cover caused the extinction of all photosynthetic organisms. Sediments deposited at the low latitudes by glaciers during the period from 710 mya to 700 mya have been found.

Banded iron formations (BIFs) that formed in the 1 million years after 700 mya at the low latitudes have been found. The BIFs formed only in ocean water that was saturated with Fe²⁺, an ion of iron that reacts readily with atmospheric O₂. Saturation with Fe²⁺ was possible only if an ocean had been cut off from atmospheric O₂ for millions of years by thick ice. Once the ice melted, the Fe²⁺ reacted with O₂ to form BIFs.

Scientist 2

From 710 mya to 700 mya, glacial ice covered all of Earth's surface except the low latitudes. The low latitudes remained mostly ice-free over this period because the continents there absorbed enough solar radiation to keep the average temperature above 0°C. Although rapid rock weathering was removing CO₂ from the atmosphere, widespread, continual volcanic eruptions at low latitudes simultaneously added an equal amount of CO₂ to the atmosphere.

Fossils of photosynthetic organisms from this period have been found. Some of the sediments from this period were deposited at low latitudes when floating icebergs that broke off of glaciers at high latitudes melted and dropped sediment that had been trapped in the ice. BIFs did form as described by Scientist 1, but only in the few isolated ocean basins at low latitudes that had been completely covered with thick ice over this period.

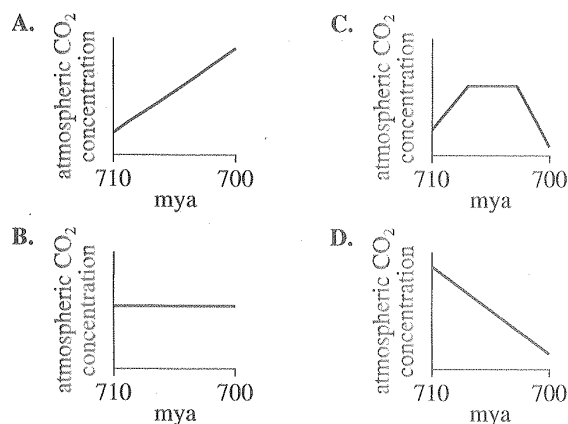
27. BIFs are composed primarily of the mineral *hematite* (Fe₂O₃). Based on Scientist 1's discussion of the formation of BIFs, which of the following expressions best represents the formation of the hematite in BIFs?

- A. oxygen → iron ion + hematite
- B. hematite + iron ion → oxygen
- C. iron ion → hematite + oxygen
- D. iron ion + oxygen → hematite

28. Which of the following processes is discussed by Scientist 2 but not by Scientist 1?

- F. The removal of CO₂ from the atmosphere by rock weathering
- G. The addition of CO₂ to the atmosphere by volcanoes
- H. The extinction of photosynthetic organisms
- J. The formation of BIFs

29. Assume that from 710 mya to 700 mya, rock weathering was the only process removing CO₂ from the atmosphere and volcanic eruption was the only process adding CO₂ to the atmosphere. Based on Scientist 2's discussion, which of the following graphs best represents the CO₂ concentration in the atmosphere over this period?



Experiment Passage Strategy

30. Fossils of the photosynthetic organisms mentioned by Scientist 2 would most likely have been found from 710 mya to 700 mya in areas at which of the following latitudes?
- F. 60°N
 - G. 40°N
 - H. 20°S
 - J. 50°S
31. Suppose it were discovered that air temperatures everywhere on Earth were continuously at or below -10°C from 710 mya to 700 mya. This discovery would more strongly support the viewpoint of which scientist?
- A. Scientist 1, because that temperature is well above the maximum temperature at which glacial ice can form.
 - B. Scientist 1, because that temperature is well below the maximum temperature at which glacial ice can form.
 - C. Scientist 2, because that temperature is well above the maximum temperature at which glacial ice can form.
 - D. Scientist 2, because that temperature is well below the maximum temperature at which glacial ice can form.
32. Suppose it were discovered that no O_2 had been present in Earth's atmosphere from 700 mya to 690 mya. Would the viewpoint of Scientist 1 be strengthened or weakened by this discovery?
- F. Strengthened, because it would indicate that BIFs would have formed at low latitudes during that period.
 - G. Strengthened, because it would indicate that BIFs would not have formed at low latitudes during that period.
 - H. Weakened, because it would indicate that BIFs would have formed at low latitudes during that period.
 - J. Weakened, because it would indicate that BIFs would not have formed at low latitudes during that period.
33. Suppose it were discovered that most of Earth's surface between 30°N and 60°N latitude was ice-free 705 mya. This discovery would *contradict* one or more statements made by which of the scientists, if either?
- A. Scientist 1 only
 - B. Scientist 2 only
 - C. Both scientists
 - D. Neither scientist

Experiment Passage Strategy

Next up is Scientist 2. Read this point of view and then hit the Scientist 2 Questions

Passage V

Two scientists discuss whether a *snowball Earth* (Earth completely covered with glacial ice) existed from 710 million years ago (mya) to 700 mya, a period during which all the continents were located on or near the equator.

Scientist 1

A million years before 710 mya, glacial ice covered all of Earth's surface except the *low latitudes* (30°N to 30°S). Over the next million years, continuing rapid rock weathering in the low latitudes removed CO₂ from the atmosphere, and the ice at high latitudes reflected incoming solar radiation. Both processes cooled Earth, which allowed the ice to spread and cover the remainder of Earth's surface by 710 mya. Soon thereafter, the 1-kilometer-thick ice cover caused the extinction of all photosynthetic organisms. Sediments deposited at the low latitudes by glaciers during the period from 710 mya to 700 mya have been found.

Banded iron formations (BIFs) that formed in the 1 million years after 700 mya at the low latitudes have been found. The BIFs formed only in ocean water that was saturated with Fe²⁺, an ion of iron that reacts readily with atmospheric O₂. Saturation with Fe²⁺ was possible only if an ocean had been cut off from atmospheric O₂ for millions of years by thick ice. Once the ice melted, the Fe²⁺ reacted with O₂ to form BIFs.

Scientist 2

From 710 mya to 700 mya, glacial ice covered all of Earth's surface except the low latitudes. The low latitudes remained mostly ice-free over this period because the continents there absorbed enough solar radiation to keep the average temperature above 0°C. Although rapid rock weathering was removing CO₂ from the atmosphere, widespread, continual volcanic eruptions at low latitudes simultaneously added an equal amount of CO₂ to the atmosphere.

Fossils of photosynthetic organisms from this period have been found. Some of the sediments from this period were deposited at low latitudes when floating icebergs that broke off of glaciers at high latitudes melted and dropped sediment that had been trapped in the ice. BIFs did form as described by Scientist 1, but only in the few isolated ocean basins at low latitudes that had been completely covered with thick ice over this period.

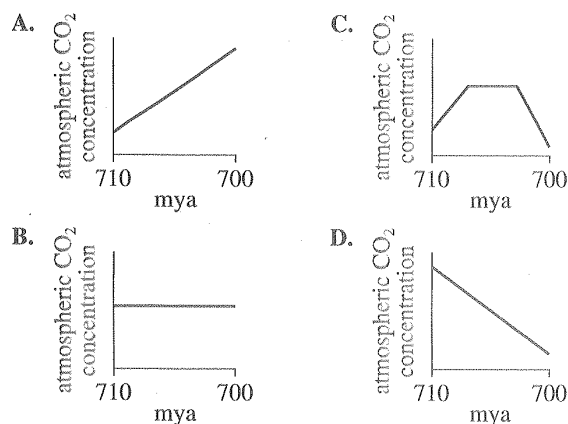
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- A. oxygen → iron ion + hematite
- B. hematite + iron ion → oxygen
- C. iron ion → hematite + oxygen
- D. iron ion + oxygen → hematite

28. Which of the following processes is discussed by Scientist 2 but not by Scientist 1?

- F. The removal of CO₂ from the atmosphere by rock weathering
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Experiment Passage Strategy

30. Fossils of the photosynthetic organisms mentioned by Scientist 2 would most likely have been found from 710 mya to 700 mya in areas at which of the following latitudes?

- F. 60°N
- G. 40°N
- H. 20°S
- J. 50°S

31. Suppose it were discovered that air temperatures everywhere on Earth were continuously at or below -10°C from 710 mya to 700 mya. This discovery would more strongly support the viewpoint of which scientist?

- A. Scientist 1, because that temperature is well above the maximum temperature at which glacial ice can form.
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33. Suppose it were discovered that most of Earth's surface between 30°N and 60°N latitude was ice-free 705 mya. This discovery would *contradict* one or more statements made by which of the scientists, if either?

- A. Scientist 1 only
- B. Scientist 2 only
- C. Both scientists
- D. Neither scientist

Experiment Passage Strategy

Having put in work for all the single-scientist questions, you're now best able to answer the compare/contrast questions.

Passage V

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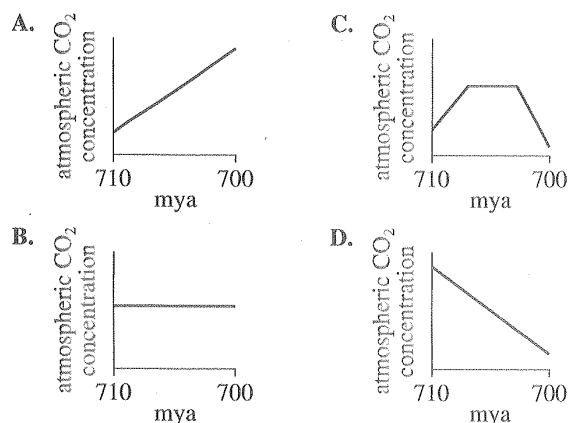
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B. Scientist 2 only
C. Both scientists
D. Neither scientist

English 1

Usage

Grammar Terminology Reference Page

The ACT does not test terminology but you may still find this handy:

- **Subject:** the main focus of a sentence, often performing some action
 - **Alexis** wrote the book.
- **Object:** The recipient of some action
 - Alexis wrote the **book**.
- **Noun:** a person place thing or idea
 - **Sharon** went to **school** to learn about **mathematics**.
- **Pronoun:** a smaller word that takes the place of the noun

Clunky: **Sheila** disliked the book, because **Sheila** found it too long for **Sheila's** liking.

Better: **Sheila** disliked the book, because **she** found it too long for **her** liking.
- **Verb:** often an action performed by the subject
 - Sharon **went** to school to **learn** about mathematics.
- **Modifiers** – words or phrases that describe the subject
 - **Boss of the Thompson Company**, John Blackwell gave orders to over fifty employees.
- **Adjectives:** describe nouns
 - the **quick** runner, my **thoughtful** brother, the **easy** test
- **Adverbs:** describe verbs, adjectives or other adverbs
 - **quickly** running; my **extremely** thoughtful brother; completing the test **extremely easily**
- **Prepositions:** the great connectors of words
 - to, across, around, of, for, past, about, from, through, over, into, toward
 - They competed **against** us. They competed **with** us. They competed **for** the prize.
- **Conjunctions and Disjunctions:** connect phrases and clauses
 - FANBOYS: for, and, nor, but, or, yet, so.
 - New York City is beautiful **but** too EXPENSIVE to stay long.
 - New York City is beautiful **and** easy to get around.
- **Clause:** a group of words that form part of the sentence. There are independent clauses and dependent clauses. An independent clause is a whole sentence or part of a sentence that contains a subject, a verb, and completes a particular thought. A dependent clause is a part of the sentence that leans on the independent clause in order to make the sentence complete. Independent clauses can stand on their own two feet; dependent clauses lean on the independent clause in the sentence.
- **Phrase:** a group of words that use prepositions and do not contain themselves subjects and verbs in the group. We often think of phrases as sections of the sentence to help modify or extend the subject or to help form the connection between the verb and the object. Remember: the object of the sentence is the part that is taking the action.

Inside the ACT English Section

What is the structure of the Writing and Language Section?

- There's a total of ____ passages with ____ questions each.

How does the pacing break down?

- The whole section is ____ minutes, so the magic number is ____ minutes per passage.

How does the difficulty level work?

- The difficulty level of the passages does not increase as you go through the section
- The difficulty level of the questions comes in no specific order.

What types of questions are asked?

- **Type 1 is Usage - these test your English grammar** (about $\frac{3}{4}$ of the questions)
- Type 2 is Rhetorical Function – essentially reading comp (about $\frac{1}{4}$ of the questions)

Which usage/grammar topics are tested?

- Punctuation – commas, semi-colons, colons and apostrophes
- Verb tense
- Verb Subject Agreement
- Noun-pronoun Agreement
- Ambiguous pronouns
- Modifiers
- Transitions
- Run-ons
- Fragments
- Conciseness
- Redundancy
- Idioms
- Parallelism

General Strategy for Usage Questions

STRATEGY ONE: Eliminate strategically by _____

- Chicago is a large, bustling city, but it's residents still maintain a calm and pleasant attitude.
 (A) No Change
 (B) large bustling city, but it's
 (C) large, bustling city but its
 (D) large, bustling city, but its
- ← Three issues are in play. Don't start with the first; start with the easiest!

STRATEGY TWO: Cut to _____

- A valuable member of upper management, Thomas Jackson, who started with the company in 2005 along with several other key players, were able to lead the team to their sales goals.

Now **cut to the core** – the excess is meant to distract

~~A valuable member of upper management, Thomas Jackson, who started with the company in 2005 along with several other key players,~~ **were** able to lead the team to their sales goals.

STRATEGY THREE: Take your selected choice and _____

- "was one of the most famous directors," ← Here's a phrase that sounds fine on its own.

Now **plug it in** context, and notice how it does not actually work

"Jason McDonald, _____ came to our town."

STRATEGY FOUR: Eliminate _____

- Although Jackson was not the first member of his class to become published, his accomplishment turned out to be the most significant.
 (A) No Change
 (B) published; his accomplishment
 (C) published. His accomplishment
 (D) published his accomplishment
- ← If (B) were right, then (C) would have to be right too.
 Since we can't have 2 right answers, they must both be wrong.

Punctuation

Medium Difficulty

Number of Questions/Test: 10

There are four main punctuation issues to tackle:

- **Commas**
- Semicolons
- Colons
- Apostrophes

RULE: Commas are used for . . .

- *Lists - - Jason knows how to **operate the machinery, man the register, and close down the store.***
- *Transitions - - Jason usually works twelve hours per day, **but he takes plenty of long breaks.***
- *Side notes - - Jason, **the founder of the Rexford Company,** will be answering the phones today.*

TRY IT YOURSELF: Where do the commas need to go below?

- *Blue Jay Mountain which can be seen off to your left is never climbed in the dead of winter.*
- *Blue Jay Mountain is the toughest peak in this range and it is never climbed in the dead of winter.*
- *Blue Jay Mountain often obscured by clouds is certainly climbable but should be scaled with caution.*

1. The man to thank for our favorite blockbuster last summer, movie director, Samuel Feinsburg has already won countless awards.
- (A) No change
(B) summer, movie director, Samuel Feinsburg
(C) summer movie director Samuel Feinsburg,
(D) summer, movie director Samuel Feinsburg,

2. Even though she is the most qualified candidate for the job so far, we'll continue the interviews before making the final decision.
- (A) No change
(B) job, so far we'll continue the interviews before
(C) job so far, we'll continue the interviews, before
(D) job so far we'll continue the interviews before

3. Our most expensive piece, the antique desk is near the entrance but we must move it into the office tomorrow.
- (A) No change
(B) piece, the antique desk, is near the entrance, but
(C) piece, the antique desk, is near the entrance but
(D) piece the antique desk, is near the entrance, but

4. There is an extremely small chance the bill will pass, without support from the democrats in congress.
- (A) No change
(B) pass, without support, from
(C) pass without support, from
(D) pass without support from

MUCH MORE ON COMMAS: <http://grammar.ccc.commnet.edu/grammar/conjunctions.htm>

Punctuation

Medium Difficult

Number of Questions/Test: 10

There are four main punctuation issues to tackle:

- Commas
- **Semicolons**
- Colons
- Apostrophes

RULE: Semi-colons split two independent clauses (complete statements)

- *Emily is the most dedicated person on the team; she has worked her way up to team captain.*
(Correct)
- *Emily is the most dedicated person on the team; and she has worked her way up to team captain.*
(Incorrect)

TRY IT YOURSELF: Which statement below gets only a comma? Which gets a semicolon?

- *Eric was elected senior class president but many people never thought he would get enough votes.*
- *Eric was elected senior class president many people never thought he would get enough votes.*

5. Lake Superior, the largest of all the great lakes, is not going to freeze over during a winter that is fairly mild.
- (A) No change
(B) over. During
(C) over; during
(D) over, during

7. Shari's work is key to our process; the directors will listen but they need her report to move forward.
- (A) No change
(B) process; the directors will listen, but
(C) process, the directors will listen, but
(D) process, the directors, will listen, but

6. Although Lisa studied all night; the exam, which was the toughest of the semester, got the better of her.
- (A) No change
(B) night; the exam which
(C) night, the exam which
(D) night, the exam, which

8. Julie is leaving tomorrow. There is no telling how long Stephen, however, will be staying with us; he needs more time to recover.
- (A) No change
(B) Stephen, however, will be staying with us, he
(C) Stephen however, will be staying with us; he
(D) Stephen however, will be staying with us, he

Punctuation

Medium Difficulty

Number of Questions/Test: 10

There are four main punctuation issues to tackle:

- Commas
- Semicolons
- **Colons**
- Apostrophes

RULE: Colons used to introduce a list or idea. The list, or the idea, must **immediately** follow the colon.

- *There are three states that are currently trying to pass Bill 103: New York, Arizona, and Delaware.*
- *People were shocked by the high property taxes: most home-owners paid over \$10,000 per year.*

TRY IT YOURSELF: Place the colon where it needs to go.

- *The new Model M sports car is fast it was clocked going over 200mph on some race tracks.*
- *The topics this semester will come from three major sciences microbiology, chemistry, and anatomy.*

9. The office had all the necessary equipment, a computer for each employee, a state of the art photocopier, and a large projector for the presentations.

- (A) No change
- (B) equipment: a computer for each employee, a state of the art photocopier and
- (C) equipment: a computer for each employee, a state of the art photocopier, and
- (D) equipment; a computer for each employee, a state of the art photocopier and

10. Phillip had not campaigned enough in the rural areas of the state, so he would likely not get the backing he needed from farmers.

- (A) No change
- (B) state: so he
- (C) state so he
- (D) state: therefore he

11. In the winter of 1911, the Forks River had become impassable due to a formidable barrier; the precarious ice jams.

- (A) No change
- (B) barrier: that being
- (C) barrier:
- (D) barrier; and this was

12. Lake Superior, the largest of all the great lakes, is not going to freeze over during such mild weather, temperatures have been well into the forties for most of the month.

- (A) No change
- (B) over, during such mild weather:
- (C) over during such mild weather:
- (D) over during, such mild weather;

Punctuation

Medium Difficulty**Number of Questions/Test: 10**

There are four main punctuation issues to tackle:

- Commas
- Semi-colons
- Colons
- **Apostrophes**

RULE: Apostrophes establish possession. Apostrophes are placed differently for singular vs. plural items

- *My **brother's** swim meet will take place tomorrow.* (Referring to one brother)
- *My **brothers'** swim meet will take place tomorrow.* (Referring to multiple brothers)

TRY IT YOURSELF: Place the apostrophes where it needs to go – there are two spots to fill.

- *Marys two boys, Jackson and Eric, started college and moved to a nearby apartment. Her sons new residence would need some work, but was charming enough.*

13. The house was large, with four generously sized bedrooms. Every one of the bedrooms closets which were walk-ins, would offer plenty of room for clothing.
- (A) No Change
(B) bedroom's closets, which were walk-ins,
(C) bedrooms' closets which were walk-ins,
(D) bedrooms' closets, which were walk-ins,

14. The crew wanted to know three main things about the factory: its size, the year it was built, and the amount of repairs it would need to meet code.
- (A) No Change
(B) factory; it's size, the year it was built,
(C) factory: it's size, the year it was built,
(D) factory: its size, the year it was built

Verb Tense Errors Low Difficulty

Number of Questions/Test: 2

RULE: Surrounding time-context determines correct verb tense

ADDED CHALLENGE: You may have to backtrack pretty far to find this time-context.

- If you **are** interested in broadcasting, you've probably considered a number of exciting jobs in this field including reporting or anchoring for a local news station. A number of schools in your area ~~were~~ appropriate for such a career path.

15. If you are interested in astronomy, you might want to find a way to pursue it on a regular basis. There were several clubs in your area that can help you explore this passion.
- (A) No change
(B) are
(C) has been
(D) once was

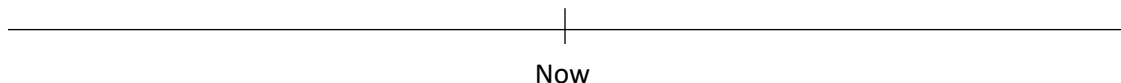
17. The incoming class at Bridgeford Law School certainly looks promising, but some students do not perform under pressure as well as others did and may even fail out.
- (A) No change
(B) do
(C) have
(D) will

16. In 1972, to reduce pollution in the Great Lakes, limits having been set by the United States and Canada on the amount of phosphorus that could be discharged into Lakes Erie and Ontario.
- (A) No change
(B) had been set
(C) were set
(D) set

18. The girls accomplished the tasks they set out to do for the day. Most importantly, they mailed the letter that contained Sue's job application to the Minsford Company.
- (A) No change
(B) have mailed
(C) will mail
(D) were mailing

PAST PERFECT TENSE: *had been, had worked, had run*

- Use this tense only when one past event precedes another past event in the same sentence.
- Example: Prior to the factory's opening, the United States had set limits on the amount of phosphorus that could be discharged into Lake Erie.



Verb-Subject Agreement Medium Difficulty Number of Questions/Test: 3

RULE: A verb must agree with its subject.

- *Jason, the founder, usually **works** twelve hours per day.*
- *Jason and Steve, the co-founders, usually **work** twelve hours per day.*

EXTRA CHALLENGE: The test writer will *create space between subject and verb*:

- EXAMPLE: ***The magic show**, which the population of Ericstown had been highly anticipating for the last several weeks, **were** full of predictable tricks.*
- TRY IT YOURSELF – find the error: *The vast array of assignments assigned to the already overloaded students appear to be enough work to last until the end of the year.*
- TRY IT YOURSELF – find the error: *Genesford Employment Agency, an organization which has linked thousands of people up with new jobs, have kept our city's economy afloat for years.*

19. The harmful effects of smoking on the vascular system is increasingly well documented.
- (A) No change
 - (B) is increasing documented
 - (C) are increasingly well documented
 - (D) are increasing in better documentation

21. Workers hoping to take a prolonged leave of absence has often been disappointed when they find that they will be docked pay.
- (A) No change
 - (B) being often disappointed
 - (C) have often been disappointed
 - (D) often disappointed

20. The grooved and barbed spears of the box jellyfish, each trailed by a poison thread, is released when the animal is threatened.
- (A) No Change
 - (B) is releasing
 - (C) has been released
 - (D) are released

22. Jefferson's novel, written in his late thirties when his mind was most focused on childhood memories, depict a sense of longing for the past.
- (A) No Change
 - (B) depicting
 - (C) depicts
 - (D) have depicted

Noun-Pronoun Agreement Medium Difficulty Number of Questions: 3

Recall what pronouns are: *it, he, she, they, them, their, etc.*

RULE: A pronoun must agree with its subject in number

- **Jason and Steve**, the co-founders, often find **they** work twelve hours per day.
Noun Pronoun
- **Smithfield Shoe Store** will be opening up **their** new location next month.
Noun Pronoun

HOW YOU ARE CHALLENGED: The test-maker will *create space between noun and pronoun*:

- EXAMPLE: The **equipment** Aaron needs for the climbing trip, most of which is scattered throughout his basement and garage shelves, will be difficult to locate if **they** are found at all.
- TRY IT YOURSELF: The notion that the universe is expanding will, of course, always be difficult to prove because they can't be backed with any visual evidence.
- TRY IT YOURSELF: Although the kitchen needs a lot of attention, the basement and the attic will take up most of the precious time we have, because it has not been cleaned in years.

23. Snow can certainly pose a hazard to drivers, but sleet and freezing rain are the main culprits in winter accidents because it creates the slickest road conditions.
(A) No Change
(B) creating
(C) they create
(D) it will create

24. Hershey, Pennsylvania was originally known as Derry Church but its name was changed to honor one of their most famous residents.
(A) No Change
(B) its
(C) it's
(D) our

25. Before boarding, a passenger must purchase his or her tickets in the main concourse of the bus terminal, rather than on the bus.
(A) No Change
(B) their
(C) one's
(D) there

26. John's statement regarding the dangers of illegal gun purchases are powerful because of their overwhelming candidness.
(A) No Change
(B) is powerful because of their
(C) are powerful because of they're
(D) is powerful because of its

Ambiguous Pronouns

Medium Difficulty

Number of Questions: 2

RULE: A pronoun must clearly connect to one and only one noun

- *Jason told Steve that working twelve hours per day is too much and that he should consider cutting his hours.*

Is Jason the "he" or is Steve?

Pronoun

- *Smithfield Shoe Store will be opening up soon but they can't say exactly what day.*

The pronoun 'they' doesn't really connect to anyone.

EXTRA CHALLENGE: The test-maker will make this a multi-sentence issue.

- **EXAMPLE:** *The multi-national bank was in financial crisis, lacking ability to lend out badly needed funds to the sinking Generex Corporation. No one knew if it would make it out of this mess anytime soon.*
- **TRY IT YOURSELF:** *Whether Susan would be able to help her mother assemble the bookshelf was unclear, because she misplaced the instruction manual.*
- **TRY IT YOURSELF:** *The wine glasses and the dishware are right next to each other in the cupboards. When you see them, make sure they don't have to be rewashed.*

27. The firemen did their best to rescue all the workers before any serious injuries set in. Just about everyone came out fine but one of them did endure serious burns.
- (A) No Change
(B) of these
(C) did
(D) of the firemen did

29. Jane keeps reminding Erin of the project that she needs to complete before tomorrow's end.
- (A) No Change
(B) she needed
(C) Erin needs
(D) Erin is needing to

28. The mechanic told Valerie that he would fix her lawn mower as soon as he was done working on the car, but knowing him, this will still be going on next week.
- (A) No Change
(B) it
(C) the car repair
(D) the car repair is a task which

30. Last week, the committee held a debate on how to handle tragic collapse of the 5th street church roof. Whether this matter is a great concern to the mayor is still yet to be seen.
- (A) No Change
(B) this
(C) it
(D) the collapse

Number of Questions/Test: 4

- Considered the best candidate in the running by far, Josephine would almost certainly win the election.

Modifier	Subject
----------	---------

- NO: **Beeping and swerving**, the accident was narrowly avoided by **Max**.

Modifier
Subject
- YES: **Beeping and swerving**, **Max** was able to narrowly avoid the traffic accident.

Modifier
Subject

- Overwhelmed with too many classes, the grades Sarah earned were less than desirable.
- Overwhelmed with too many classes, Sarah earned less than desirable grades.

- (A) No change
(B) critics once were ridiculing Jackson Pollock
(C) Jackson Pollock once ridiculed by critics
(D) Jackson Pollock was once ridiculed by critics

Transitions

High Difficulty

Number of Questions/Test: 4

Transitions link one idea to the next:

- Xavier is probably has the most natural talent on our team. **On the other hand**, he never comes to practice.

RULE: The right transition must be used to establish the intended link:

CONTRAST	SIMILARITY	CONTINUATION	SHOWING EXAMPLE	EMPHASIS
On the other hand On the contrary However In contrast	Likewise Similarly	In addition Furthermore Similarly Moreover	For instance For example	In fact As a matter of fact Indeed Certainly
	RESTATEMENT	CHRONOLOGICAL ORDER	CAUSE AND EFFECT	
	In other words To clarify	Previously Meanwhile Subsequently Finally	Consequently As a result Therefore Thus	

EXTRA CHALLENGE: The test-maker will force a lot of reading comprehension: most transitions questions involve two or more sentences. **Furthermore**, those sentences can be complex.

TRY IT YOURSELF: Which example below has the correct transition? Which does not? Can you fix the wrong one?

- The Bengal tiger has amazingly sharp claws that can tear through flesh, and sharp fangs that can puncture even the toughest of bone. **Consequently**, it is one of nature's most deadly predators.
- The martial arts master prepared his students with the most rigorous training program ever developed in the western hemisphere, **Consequently**, his students were not ready for the bitter competition at the tournament.

36. The famous battle depicted in the film *Braveheart* took place in northern England. On the other hand, many people assume it was filmed in the Scottish highlands.
(A) No change
(B) As a result,
(C) Subsequently,
(D) Moreover

38. Some people are convinced that dowsing, a method of finding underground water with a y-shaped stick is effective. Others, as a result, condemn the procedure as mere superstition.
(A) No change
(B) for example
(C) therefore
(D) however

37. One can make the case that Canada should not be referred to as our northern neighbor. Meanwhile, more than half of the states extend farther north than Canada's southernmost point.
(A) No change
(B) In fact,
(C) As a result
(D) Furthermore

39. One might think that many museums would house the Roman war chariots that are so familiar to us. On the contrary, these are very rare artifacts because by the sixth century B.C. they were no longer used in battle.
(A) No change
(B) Thus,
(C) Likewise,
(D) In sum,

Run-On Sentences

Medium Difficulty

Number of Questions/Test: 2

A sentence with two *independent clauses* is a run-on. Run-ons sound like 2 sentences jammed into one.

- Jeff plays baseball every year, he is the captain of his team. (Run on)
Independent clause
Independent clause

RULE: A run-on can be fixed in one of the following ways

- Jeff plays baseball every year; he is the captain of his team. (Use a semi-colon.)
- Jeff plays baseball every year, and he is the captain of his team. (Use a conjunction.)
- As the captain of his team, Jeff plays baseball every year. (Make one clause *dependent*.)
Dependent clause
Independent clause

TRY IT YOURSELF: Fix the run-on below in three different ways.

- The rain outside is coming down in sheets, the downpour won't last long.

40. Lions are not commonly solitary animals, they tend to roam in packs called prides, many of which span three generations.
 (A) No change
 (B) animals; they tend to
 (C) animals, and tending to
 (D) animals, and often tends to

42. The artwork centered around a raging river, twisting and winding through the landscape.
 (A) No change
 (B) it twisted and winded
 (C) who twisted and winded
 (D) as it twisted and winded

41. Some of the largest trees in the world are red woods, these typically stand between two hundred and three hundred feet tall.
 (A) No change
 (B) very often these stand
 (C) and they typically stand
 (D) typically standing

43. The boarding school students had a strict schedule. Each day they rose at 6am, exercised in the morning, attended class until late afternoon, and worked on homework in the evenings.
 (A) No change
 (B) schedule, each day they
 (C) schedule; each day rising
 (D) schedule: each day rising

Tip: Run-ons typically occur at a comma.

Fragments

High Difficulty

Number of Questions/Test: 2

The opposite of a run-on, a **fragment** is a sentence that cuts off short.

- The car, which is out back. (A fragment leaves you waiting for more...)
Dependent clause

RULE: A fragment can be fixed in two main ways →

- The car, which is out back, **needs repair.** (Add a final thought.)
- The car is out back. (Remove a word to create an independent clause.)

THE ADDED CHALLENGE: A sentence can be super-long and still be a fragment!

- The car, which is one of the first in its class not only to run solely on electricity but also to reach sixty miles per hour in less than four seconds.

44. The oldest employee in the company, who has been working here for over twenty years and is someone that the rest of the staff look to for guidance.
- (A) No change
 - (B) who has worked
 - (C) has worked
 - (D) a worker

reasons to avoid the endeavor, not the least of which was the enormous amount of money he would have to raise.

- (A) No change
- (B) Jeb O'Brien, having run
- (C) Jeb O'Brien ran
- (D) Jeb O'Brien, who ran

45. The state park ten miles outside of town, now in danger of closing due to a lack of government funds after budgetary changes made last year.
- (A) No change
 - (B) town, which is now in danger
 - (C) town, now being in danger
 - (D) town is now in danger

47. The antique wooden table, constructed of very thick, heavy oak, sat in my grandmother's dining room ever since her wedding day.
- (A) No change
 - (B) very thick heavy oak, sitting
 - (C) very thick, heavy oak, having sat
 - (D) very thick heavy oak, sat

46. Jeb O'Brien, running for office despite the countless

Conciseness

Medium Difficulty

Number of Questions/Test: 3

English *sounds right* to your ear when it is not only correct, but also **concise**.

RULE: Between two grammatically correct choices on the ACT, winner goes to the most **concise**.

- **In consideration of these unusual circumstances**, we can make an exception for you.
- **Considering these unusual circumstances** , we can make an exception for you. ←Shorter = better

TRY IT YOURSELF: Determine the best version below.

- In a more formal way of speaking, the area under the curve can be computed with an integral.
- More formally, the area under the curve can be computed with an integral.

TRY IT YOURSELF: Determine the best version below.

- Alex has trained relentlessly for the coming race, running over forty miles per week.
- Alex has trained relentlessly for the coming race, and he has run over forty miles per week.

48. Containing a wide variety of books, in which information on deep sea fishing could be found, the Lansford Library would certainly suit our needs.
- (A) No change
 - (B) books having information on deep sea fishing,
 - (C) books about deep sea fishing,
 - (D) books on the matter of deep sea fishing,

50. He would not comment on the matter regarding how David managed to cheat on the test without anyone noticing.
- (A) No change
 - (B) on how David cheated
 - (C) on David's cheating
 - (D) on the matter in which David cheated

49. The weather conditions were severe, and the hikers knew that their gear may or may not be sufficient to protect them from the cold
- (A) No change
 - (B) might not provide one with sufficient protection
 - (C) might not protect themselves
 - (D) might not protect them

51. According to the research, there is no known cure for certain strains of the virus that now ravage the countryside.
- (A) No change
 - (B) As is contained in the research, there
 - (C) Information present in the research shows that there
 - (D) The research facts show that their

Redundancy

Medium Difficulty

Number of Questions/Test: 3

RULE: An idea is **redundant** when it repeats something already stated.

- The company holds an **annual** Christmas party for its employees **every year**.

TRY IT YOURSELF: Can you find the redundancies below?

- Because of the rain, we will need to postpone the picnic and move it to another day.
- The shattered pain of glass, which was broken into many pieces, would pose a hazard if not cleaned up soon.

52. The boss of the company was extremely upset with Jake's performance, and decided to fire him and terminate his employment.
- (A) No change
(B) by terminating his employment.
(C) and ended his employment.
(D) DELETE the underlined portion

54. Infrequent weather phenomena, including the rare F5 tornado, are precisely the events that the team hoped to capture over the summer.
- (A) No change
(B) rarely including the F5 tornado
(C) including the F5 tornado
(D) including the seldom-viewed F5 tornado

53. The passageway that measured barely more than a foot – a little over twelve inches – would be difficult to maneuver through.
- (A) No change
(B) foot, twelve inches or so, would
(C) foot, perhaps 12 inches, would
(D) foot would

55. The environmentalists were accused of fabricating and making up a story that would force the company to pay large fines to the government.
- (A) No change
(B) fabricating a story
(C) fabricating and deceitfully constructing a story
(D) fabricating a false and incorrect story

Tip: The "DELETE the underlined portion" option is a common feature of redundancy questions.

Idioms

Medium-High Difficulty

Number of Questions/Test: 1

An **prepositional idiom** is a phrase that requires a specific preposition (to, for, in, with, by) to be correct.

- Susan has an incredible **ability to learn** language (Idiomatically correct)
- Susan has an incredible **ability for learning** language (Idiomatically incorrect)

RULE: There is no rule! You simply just need to know the right preposition for each circumstance.

TRY IT YOURSELF: Fill in the missing prepositions.

- Amanda is capable _____ learning language.
- Brett is forbidden _____ go out.
- Carly refused offers _____ assistance.
- Daniel is immune _____ the awful disease.
- Erika is preoccupied _____ this show.

56. Melissa's clear lack of consideration was demonstrated in her refusal to compromise with her peers on even the smallest matters.
 (A) No change
 (B) with
 (C) by
 (D) on

58. The search party plodded day and night through the forest in an effort of bringing Sarah home soon.
 (A) No change
 (B) in an effort to bring
 (C) with the effort of bringing
 (D) on an effort to bring

57. The coach was not confident about the upcoming season. He saw that his team was unclear about even the most basic fundamentals of the game.
 (A) No change
 (B) fundamentals in the game
 (C) fundamentals on the game
 (D) fundamentals about the game

59. The lawyers knew that, according to the judge's rules, they would be prohibited from raising any questions about the defendant's background.
 (A) No change
 (B) prohibited to raise any questions about
 (C) prohibited to raise any questions with
 (D) prohibited from raising any questions into

Idioms

Medium-High Difficulty

Number of Questions/Test: 1

Here's a big list of idioms that have shown up on the SAT. Star the ones you didn't know!

About

Worry about
Complain about
Wonder about
Curious about
Think about
Bring about
To be particular about

Against

Protect against
Defend against

At

Succeed at
Adept at

By

Confused by
Followed by
Predate by
Puzzled by
Perplexed by
Impressed by
Amazed by
Awed by
Surprised by
Stunned by
Shocked by
Outraged by
Encouraged by
Accompanied by

For

Named for
Recognized for
Known for
Famous for
Celebrated for
Have a tolerance for
Strive for
Compensate for
Responsible for
Watch for
Look out for
Wait for
Last for
Endure for
Prized for
Necessary for
Criticize for
Blame for
Advocate for

From

Protect from
Defend from
Far from
Different from
Refrain from
Apparent from
Prevent x from doing y
Opposite from

Into

Enter into
Have insight into

In

Interested in
Succeed in
Have confidence in
Engage in
Take pride in
In x as in y

On

Based on
Draw on
Insist on
Focus on
Rely on
Reflect on
Dwell on

Over

Have power over
Have control over
Mull over

Of

Have an appreciation of
Suspicious of
A mastery of
A command of
Capable of
Incapable of
In recognition of
Devoid of
A proponent of
A source of
An offer of
An understanding of
A knowledge of
Approve of
Disapprove of
In awe of
Take advantage of
Composed of
Comprised of
Consist of
Convinced of
Characteristic of
Typical of
In the hopes of
A variety of
A plethora of
An abundance of
To be a native of
On the verge of
Combination of x and y

Recommend to
Listen to
Try to – not try and
Prefer something
to something else
Devoted to
In contrast to
In opposition to
A threat to
Central to
Unique to
Similar to
Parallel to
As an alternative to
Inured to
Be native to
Put questions to
In addition to
As opposed to

Toward

Biased toward
A tendency toward

With

Familiar with
Unfamiliar with
Identify with
Correlate with
Sympathize with
Consistent with
Inconsistent with
Preoccupied with
Cope with/Coping with

To

Parallelism

Medium-High Difficulty

Number of Questions/Test: 1

RULE: Items in a list should possess the same grammatical form:

Not Parallel (incorrect)		Parallel (correct)
Max likes to swim, hike and scuba diving .	Vs.	Max likes to swim, hike and scuba dive.
Polly is better in math than English	Vs.	Polly is better in math than in English .

EXTRA CHALLENGE: The more complex the list, the harder it is to create parallelism. See below.

TRY IT YOURSELF: Some are already parallel. Some are not.

- *Hockey, football, and soccer* are three of Max's favorite sports.
- There is a much greater chance that life once existed on Mars than Venus.
- Changing the oil, tire rotations, and replacing the filter are all necessary for your car at this point.
- Passing our biology course relies on completing homework and the tests we take.
- Construction of sky-scrapers, progress in medicine and transportation advances are all factors ushered in a modern age for the United States.

60. Building a new walkway to the garage will be a lot easier than the repair of the one that exists.
- (A) No Change
 - (B) the repair of the existing one.
 - (C) repairing the existing one.
 - (D) the repair.

62. Emily knew that, after the surgery, she would be stronger, healthier, and more energetic, all of which would contribute to a greater sense of well-being.
- (A) No Change
 - (B) she would be more energized
 - (C) have more energy
 - (D) being more energetic

61. The hikers traveling through Yellowstone Park know that their ground tarps not only serve to keep moisture away from their tent floor but also provide quick shelter from the rain.
- (A) No Change
 - (B) providing
 - (C) will provide
 - (D) provides

63. The enormous farm was more than adequate, with vast fields of fertile soil for planting, sturdy pens for housing animals, and plenty of storage for grains available in large silos.
- (A) No Change
 - (B) and it would be possible to store grains in large silos
 - (C) and large silos for storing grain
 - (D) and large silos would allow grain storage

English Usage Summary Sheet

Commas – separate ‘side notes’ from the ‘main track’ and are used to split ideas in transitions

- The new policy, **which was passed last week**, will apply to all levels of the department.
- The new baseball stadium was funded well, **but** the staff was ill-equipped to run it properly.

Colons – to introduce lists or ideas

- The job requires three main items: **your references, your resume, and your cover letter.**
- Neptune is very distant planet: **its orbit lies roughly 4.5 billion miles from the sun.**

Semicolons – separate two related but independent clauses

- The journey will be a difficult one; few people have the strength to complete it.

Apostrophes – plural possessive means comma after the ‘s’

- All of the **neighbors’** yards are very well manicured. (Apostrophe indicates **multiple neighbors**)
- Our next door **neighbor’s** dog won’t stop barking! (Apostrophe indicates **one neighbor**)

Verb Tense - Know the surrounding context!

- Allison loved everything about the new house. She finally had her meeting with the sellers and ownership was transferred. The process ~~is~~ long but well worth it.
was

Subject-Verb Agreement – The key is to carefully ID the subject.

- The crowd of teenagers, causing upheaval throughout the halls, ~~are~~ ^{is} now the biggest problem.

Noun-Pronoun Agreement – The key is to carefully ID the subject.

- Noun-Pronoun: Colorado, a prime destination for many climbers, is renowned for ~~their~~ ^{its} challenging peaks.

Ambiguous Pronouns – pronouns with no clear subject

- The congressmen discussed the new bill with the senators. Afterwards, ~~they~~ ^{the congressmen} returned to the White House.

Modification – the item modified must be next to its modifier

- Well overdue for an oil-change, ~~a mechanic needs to give attention to Jeff’s car soon.~~ ^{Jeff’s car needs attention from a mechanic soon.}
- The merchant showed the diamond ring ~~to the tourist with amazing sparkle.~~ ^{with amazing sparkle to the tourist.}

English Usage Summary Sheet

Transitions – Carefully consider the relationship between the previous and current sentence.

- The candidate knew about foreign policy. ~~As a result,~~ ^{On the other hand} he was not well-versed in economic matters.
- It will be an incredibly hot day. The temperature, ~~however,~~ ^{in fact} may exceed 100 degrees.

Conciseness – given two grammatically correct choices, the winner is the shortest

- Emily is a productive member, ~~which can be seen from her completion of~~ ^{completing} several projects each week.

Redundancy – Don't say the same thing twice.

- It is with **certainty** that Jefferson, the leader of the campaign, will ~~undoubtedly~~ bring us to victory.

Run-ons – essentially two full sentences jammed into one

- The committee simply couldn't find a ~~resolution, they've~~ ^{resolution; they've} been debating the matter all week.

Fragments – These are the opposite of a run-ons, sounding incomplete.

- The committee, ~~which~~ ^(Remove 'which') simply couldn't find a resolution.

Idioms – There's no particular rule. You simply need to know the right preposition.

- Peter was captivated ~~on~~ ^{by} the endless beauty of the landscape.

Parallelism – Items in a list or comparison should obey an identical or similar structure.

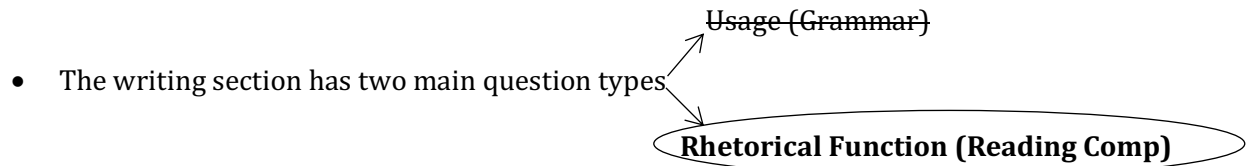
- **Logging** the data correctly is much more important than ~~the decision of how to interpret it.~~ ^{deciding} how to interpret it.

English 2

Rhetorical Function

Inside the ACT English Section

- Recall that the ACT English section had 2 major question types. Now we're onto the second one:



- Rhetorical function questions are the _____ of the English Section – slow down!

There are 4 types Rhetorical Function questions we will check out:

Type 1 – Inserting a statement

- “Which provides information most **relevant to the main focus** of . . . ?”
- “Which of the following is **most consistent with the essay** as a whole?”
- “Which of the following provides the **best transition between** . . . ?”
- “Which provides **the most logical cause for** the event described in . . . ?”
- “Should the author insert the following? (yes/no)”

Each example requires you to insert a statement for a **specific reason**. Always identify and underline that reason!

Type 2 – Deleting a statement

- “If the writer removed this sentence, the essay would primarily lose”
- “Should the writer delete the preceding sentence? (Yes/No)”

The two main reasons to delete a statement:

- It is irrelevant
- It is redundant

Type 3 - Logical placement of a statement

- “For the sake of coherence, Sentence 6 should be placed: ”

When placing a statement, you have to be sure it **links** to both the *previous* and *following* sentences.

Type 4 – Whole Passage

- “Suppose the writer’s goal had been to write an essay focusing on . . . Would this essay successfully fulfill the writer’s goal?”

Treat these just like Reading Section Whole Passage questions.

Inserting Statements Medium Difficulty Number of Questions/Test: 5

These questions ask you to insert *new information* into the passage.

The key to success on these is to _____

EXERCISE: Underline the precise task in each question. The first is done for you.

- Which choice provides the most logical introduction to the sentence?
- Which choice most effectively concludes the paragraph with a restatement of the main claim?
- Which choice best supports the statement made in the previous sentence?
- Which choice effectively links the first paragraph to the ideas that follow?

Modified passage excerpt from p. 578 in text book:

Studies have shown that 1 students are happier when they are supported in an environment that affords them adequate amounts of natural light. New buildings may be designed with these studies in mind, but many older buildings were not, resulting in spaces that often depend primarily on artificial lighting. While it is expensive to reconfigure such buildings to increase the amount of natural light, the investment has been shown to be well worth it in the long run for both employees and employers. Companies that have already spent money on such remodeling have 2 seen great leaps in overall efficiency almost immediately. As a result, such a project, though costly at first, will certainly paid off over time.

Lack of exposure to natural light has a significant impact on employees' health. A study conducted in 2013 by Northwestern University in Chicago showed that inadequate natural light could result in 3 a significant drop in overall employee work output. Like any other health problems, these ailments can increase employee absenteeism, which, in turn, is costly for employers. 4 Employees who feel less than 100 percent and are sleep deprived are also less prone to work at their maximal productivity. The same study showed that work spaces offering plenty of natural light reported not only fewer cases of sickness but much higher overall worker efficiency.

Remember two things: **go slow** and **underline the precise task**

- | | |
|---|--|
| <p>1. Which choice provides the most appropriate introduction to the paragraph.</p> <p>(A) No change</p> <p>(B) people are more comfortable when they travel</p> <p>(C) families are more close-knit when they live</p> <p>(D) employees are more productive when they work</p> | <p>3. Which choice best supports the statement made in the previous sentence?</p> <p>(A) No change</p> <p>(B) eye strain, headaches, fatigue, and depression.</p> <p>(C) greater incidence of lay-offs and firings.</p> <p>(D) a change in sleeping and eating habits.</p> |
| <p>2. Which choice most effectively concludes the paragraph by supporting the main claim.</p> <p>(A) No change</p> <p>(B) been able to pay off such costs slowly over time.</p> <p>(C) watched other companies forgo this great opportunity.</p> <p>(D) hired enough new staff to expand to foreign countries.</p> | <p>4. At this point, the writer is considering adding the following sentence.</p> <p><i>Some of the financial obligations that most employers incur are payroll, rent, and insurance.</i></p> <p>(A) Yes, because it explains the nature of what employers have to afford to stay in business.</p> <p>(B) Yes, because it provides supporting details to the main claim of the paragraph.</p> <p>(C) No, because it distracts from the focus of the paragraph with a loosely related detail.</p> <p>(D) No, because it contradicts the main point of the paragraph.</p> |

A good policy on a YES/NO question is to first pick a side – YES or NO – and then eliminate those that don't agree right away.

Deleting Statements Medium Difficulty Number of Questions/Test: 2

These questions ask you to consider **deleting** a statement from the passage.

The most common reasons to delete a statement are:

- because it is _____
- because it is _____

Modified passage excerpt from p. 578 in text book:

Studies have shown that employees are more productive when they work in an environment that affords them adequate amounts of natural light. New buildings may be designed with these studies in mind, but many older buildings were not, resulting in spaces that often depend primarily on artificial lighting. While it is expensive to reconfigure such buildings to increase the amount of natural light, the investment has been shown to be well worth it in the long run for both employees and employers. Companies that have already spent money on such remodeling have seen great leaps in overall efficiency almost immediately.

5 As a result, such a project, though costly at first, has certainly paid off over time.

*Lack of exposure to natural light has a significant impact on employees' health. A study conducted in 2013 by Northwestern University in Chicago showed that inadequate natural light could result in eyestrain, headaches, fatigue and depression. **6** Like any other health problems, these ailments can increase employee absenteeism, which, in turn, is costly for employers. Employees who feel less than 100 percent and are sleep deprived are also less prone to work at their maximal productivity. The same study showed that work spaces offering plenty of natural light reported not only fewer cases of sickness but much higher overall worker efficiency.*

When answering the questions below, consider whether or not there exists **a link**.

- 5.** The writer is considering deleting the underlined sentence. Should the writer do this?
- (A) No, because it provides a new detail that supports the main topic of the paragraph.
 - (B) No, because it continues the explanation of how natural lighting will make workers more productive.
 - (C) Yes, because it blurs the paragraph's main focus with an irrelevant detail.
 - (D) Yes, because it repeats information that has been provided earlier in the paragraph.

- 6.** The writer is considering deleting the underlined sentence. Should the writer do this?
- (A) No, because it explains the connection between employee health problems and employer costs.
 - (B) No, because it provides an example of health problems that reduce productivity in the work place.
 - (C) Yes, because it repeats information that has been provided earlier in the paragraph.
 - (D) Yes, because it contradicts the main argument of the paragraph.

Logical Placement

Very High Difficulty

Number of Questions/Test: 3

These questions give you 4 choices of where a sentence should go in a passage.

Expect taking _____ the amount of time here than on any other question type

A helpful start here is to eliminate the impossible. You cannot place a sentence in a certain spot if it

- _____
- _____

Modified passage excerpt from p. 578 in text book:

[1] Studies have shown that employees are more productive when they work in an environment that affords them adequate amounts of natural light. [2] New buildings may be designed with these studies in mind, but many older buildings were not, resulting in spaces that often depend primarily on artificial lighting. [3] While employers may balk at the expense of reconfiguring such buildings to increase the amount of natural light, the investment has been shown to be well worth it in the long run for both employees and employers. [4] For these reasons, companies that have already spent money on such remodeling have seen great leaps in overall efficiency almost immediately.

[5] Lack of exposure to natural light has a significant impact on employees' health. [6] A study conducted in 2013 by Northwestern University in Chicago showed that inadequate natural light could result in eyestrain, headaches, fatigue and depression. [7] Like any other health problems, these ailments can increase employee absenteeism, which, in turn, is costly for employers. [8] Employees who feel less than 100 percent and are sleep deprived are also less prone to work at their maximal productivity. [9] The same study showed that work spaces offering plenty of natural light reported not only fewer cases of sickness but much higher overall worker efficiency.

- 7.** The writer wants to add the following sentence to the paragraph.

Employees are happier and more energetic throughout their day, and employers reap the benefits of a more able and willing staff.

The best placement for the sentence is immediately

- (A) after sentence 1
- (B) after sentence 2
- (C) after sentence 3
- (D) after sentence 4

You must give logical placement questions the time they require – often triple the time of any other question! Short on time? Skip them!

- 8.** The writer wants to add the following sentence to the paragraph.

The productivity data was especially positive in companies that engage in highly collaborative projects.

The best placement for the sentence is immediately

- (A) after sentence 5
- (B) after sentence 6
- (C) after sentence 8
- (D) after sentence 9

Whole Passage**Medium Difficulty****Number of Questions/Test: 2**

These YES/NO questions ask whether the author accomplished a particular overall goal.

Most questions of this type ask whether the author accomplished a particular goal.

The first move on such a question should be to decide _____

Modified passage excerpt from p. 578 in text book:

Studies have shown that employees are more productive when they work in an environment that affords them adequate amounts of natural light. New buildings may be designed with these studies in mind, but many older buildings were not, resulting in spaces that often depend primarily on artificial lighting. While it is expensive to reconfigure such buildings to increase the amount of natural light, the investment has been shown to be well worth it in the long run for both employees and employers. Companies that have already spent money on such remodeling have seen great leaps in overall efficiency almost immediately.

Lack of exposure to natural light has a significant impact on employees' health. A study conducted in 2013 by Northwestern University in Chicago showed that inadequate natural light could result in eyestrain, headaches, fatigue and depression. Like any other health problems, these ailments can increase employee absenteeism, which, in turn, is costly for employers. Employees who feel less than 100 percent and are sleep deprived are also less prone to work at their maximal productivity. The same study showed that work spaces offering plenty of natural light reported not only fewer cases of sickness but much higher overall worker efficiency.

When answering the questions below, consider whether or not there exists **a link**.

9. If the writer's goal was to present an essay that supports refitting workspaces to provide more natural light, did he accomplish this goal?
- (A) No, because it fails to show the link between natural light and the health and productivity of a working staff.
 - (B) No, because it explains that this endeavor exceeds the financial means of certain businesses.
 - (C) Yes, because his essay quantifies the amount by which the cost of such a refitting exceeds the cost.
 - (D) Yes, because it shows some important ways that refitting a building to provide more natural light benefits two groups of people.
10. If the writer's goal was to present an essay that explains how older buildings can be refitted to provide more natural light, did he accomplish this goal?
- (A) No, because the author focuses only on the consequences of not pursuing such a remodel.
 - (B) No, because the essay largely explains the advantages of such a refitting rather than the procedure of the undertaking.
 - (C) Yes, because it provides sufficient evidence that both employers and employees will be more productive in an environment with an abundance of natural light.
 - (D) Yes, because it provides several affordable techniques that are utilized to restructure any office space.

ACT Essay

The general task:

- Read an issue that has 2 clear sides to it
- Read 3 provided perspectives on this issue
- Create an essay where you support one side of the issue while incorporating the 3 perspectives

The pacing:

- 40 minutes total
- 5 minutes to plan, 30 minutes to write, 5 minutes to proofread

The Grading Criteria:

- Ideas and Analysis – The strength of your thesis and arguments, your inclusion of the perspectives
- Development and Support – The level of detail you provide in developing arguments
- Organization – your use of paragraphs and structural sentences such as thesis and topic sentences
- Language – your grammar, spelling and clarity

How the essay is scored:

- Two graders judge your essay on a 1-6 scale using the above criteria
- The two graders' scores are summed for a max possible score of 12

The recommended skeleton:

- **Intro**
 - Overview both sides of the issue
 - State a thesis that *clearly* supports 1 side
 -
- **Argument 1**
 - Topic sentence that *clearly* states an argument (Utilize a supporting perspective)
 - Develop with *specific* details and examples
 -
- **Argument 2**
 - Topic sentence that *clearly* states an argument (Utilize a supporting perspective)
 - Develop with *specific* details and examples
 -
- **Counter Argument**
 - Topic sentence stating an argument counter to your thesis (Utilize the counter perspective)
 - Logically tear down that counter with examples if possible
- **Conclusion**
 - Restate your thesis
 - Snappy close

ACT Essay

Sample Prompt for the ACT Essay:

Intelligent Machines Many of the goods and services we depend on daily are now supplied by intelligent, automated machines rather than human beings. Robots build cars and other goods on assembly lines, where once there were human workers. Many of our phone conversations are now conducted not with people but with sophisticated technologies. We can now buy goods at a variety of stores without the help of a human cashier. Automation is generally seen as a sign of progress, but what is lost when we replace humans with machines? Given the accelerating variety and prevalence of intelligent machines, it is worth examining the implications and meaning of their presence in our lives.

Read and carefully consider these perspectives. Each suggests a particular way of thinking about the increasing presence of intelligent machines.

Perspective One	Perspective Two	Perspective Three
What we lose with the replacement of people by machines is some part of our own humanity. Even our mundane daily encounters no longer require from us basic courtesy, respect, and tolerance for other people.	Machines are good at low-skill, repetitive jobs, and at high-speed, extremely precise jobs. In both cases they work better than humans. This efficiency leads to a more prosperous and progressive world for everyone.	Intelligent machines challenge our long-standing ideas about what humans are or can be. This is good because it pushes both humans and machines toward new, unimagined possibilities.

Essay Task: Write a unified, coherent essay about the increasing presence of intelligent machines. In your essay, be sure to:

- clearly state your own perspective on the issue and analyze the relationship between your perspective and at least one other perspective
- develop and support your ideas with reasoning and examples
- organize your ideas clearly and logically
- communicate your ideas effectively in standard written English

Your perspective may be in full agreement with any of those given, in partial agreement, or completely different.

ACT Essay

Sample Essay (Score of 5)

It is no secret that today's workforce no longer consists entirely of people. Rather, machines are being developed to complete many of the tasks which humans have traditionally done. This can greatly increase productivity and efficiency of simple, repetitive tasks. Many people view this as a great positive and point out that it leads to a more uniform and less expensive product which is better for everyone. However, some people are more wary of this popular trend of automating the workforce and question whether this progress is truly positive. Their concerns, though, are outweighed by the benefits these machines offer.

It is the popular view among companies which are moving toward automation that robots can do many tasks better than humans. For example, in the automotive industry, most of a car's individual components are manufactured by pre-programmed robots which have much greater and more precise output than would be possible for a human. In addition, robots cut down the cost of production by a considerable amount. If a company hires an employee to complete a simple task for \$50,000 per year but could instead buy a machine for a one time purchase of \$30,000, it is far more cost effective to buy the machine. Lower cost of production means that the goods produced can now be sold at a lower pricepoint which passes the savings on to the consumer. Companies producing goods rightly contend that the use of machines to complete low-skill jobs has only positive impact for everyone.

Beyond these benefits for industry, some believe that machines will shape the future for the human race. Innovation and invention of new more intelligent machines can push us as humans toward new, unimagined possibilities. For example, before the first airplane was invented, people could only dream of human flight, but at the moment of takeoff, a whole new world of unimaginable possibilities was suddenly within our grasp. Through even just that one invention, an entire multi-billion dollar a year industry was born, and our lives improved and advanced in a multitude of ways. Who can know what great advancements may be brought about by a more intelligent machine than what we possess today? The possibilities are endless.

There are those who are less enthusiastic about all this progress and advancement. They argue that by not having to interact with fellow humans, we no longer are required to be courteous and have tolerance for others. While this may be true, this is a minor cost for a major increase in efficiency. Take the example of self checkout systems in grocery stores. Self checkout permits consumers to procure their goods and get out of the store quickly. This might seem like a small time-saver, but considering how often this experience is repeated reveals a cumulative effect. Across time, consumers end up saving hours, which improves the efficiency of their daily lives, allowing them to spend time on things that are of greater interest and meaning to them.

Whether humans like it or not, machines are becoming more and popular in the workplace and are decreasing the need for humans to work those jobs. This can lead to advancement of society, a greater end product or service, and even a lower consumer cost of goods. Many people are frightened of change, but unfortunately for them, the past is gone and now we must look to the future.

Extra Resources

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