

Test Prep Deep Dive: All About the ACT

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- Dan Cozzens
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Panelists:

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Welcome!
The webinar will begin shortly.



Test Prep Deep Dive: the ACT Schedule For Today

- The ACT
 - Classic & Enhanced side by side
 - Adoption calendar
- Section by Section
 - English
 - Math
 - Reading
 - Science
 - Essay
- Test Preparation Basics
 - Core Principles
 - Schedules & Timing

ACT Test Overview: Structure & Grading

Sections	Time (Classic)	Questions (Classic)	Time (Enhanced)	Questions (Enhanced)	Score
English	45 mins	75	35 mins	50	1-36
Math	60 mins	60	50 mins	45	1-36
Reading	35 mins	40	40 mins	36	1-36
Science	35 mins	40	40 mins (Optional)	40 (Optional)	1-36
Total:	175 mins	215	125 mins / 165 mins	131 / 171	Composite (avg): 1-36
Essay (Optional)	40 mins	1 prompt	40 mins	1 prompt	2-12

ACT Format Overview: Facts & Recommendations

	April '25	June '25	July '25	September '25	April '26
Weekend - Paper & Pencil	Classic	Classic	Classic	Enhanced	Enhanced
Weekend - Online	Enhanced	Enhanced	Enhanced	Enhanced	Enhanced
School Day - Online & P&P	Classic	Classic	Classic	Classic	Enhanced

ACT Classic - English - Overview

Classic English Structure

- 75 questions in 45 minutes
- Some questions have stems, some do not
- 5 passages of 15 questions each

PASSAGE II

The Adventures of a Musician

Born in 1943 in Cuba, Tania León developed a keen interest in music at an early age. When she was just four years old, she would tune the families radio to classical music and then listen intently to every note. Noticing this fascination, Tania's grandmother enrolled her in the Havana Music Conservatory, where she became the youngest student in the school. She chosed to study piano.

León was also fascinated by faraway places. She covered her bedroom walls with postcards of famous sites. She invented languages no one else could understand and dreamed of traveling around the world. Irritated by this desire for adventure, León moved to New York City in her early twenties. There, Arthur Mitchell, director of the

16. **F.** NO CHANGE
G. family's radio,
H. families radio,
J. family's radio
17. **A.** NO CHANGE
B. she was enrolled by her grandmother
C. Tania was enrolled
D. she enrolled her
18. **F.** NO CHANGE
G. had chose
H. choosed
J. chose
19. Which of the following alternatives to the underlined portion would NOT be acceptable?
A. places and
B. places that
C. places: she
D. places, so she
20. **F.** NO CHANGE
G. Prompted
H. Riled up
J. Annoyed

ACT Enhanced - English - Overview

Enhanced English Structure

- 50 questions in 35 minutes
- Each question has a stem
- 6 passages
 - 4 passages with 10 questions
 - 2 passages with 5 questions

Rediscovering Hrosvitha

Hrosvitha, a medieval **author and dramatist**—is one of the earliest known European women playwrights.

Although little is known about her life, scholars agree Hrosvitha was born to a noble family around 935 CE.

As a relation of Holy Roman Emperor Otto I, she most likely spent her early years as part of his court. Later, sometime before 959 CE, she entered the abbey at Gandersheim, it was well known as a significant center of learning.

Hrosvitha entered Gandersheim as a canoness rather

Which choice makes the sentence most grammatically acceptable?

- A. **No Change**
- B. author and dramatist,
- C. author, and dramatist
- D. author and dramatist

ACT English: Content - Grammar

Management Consulting

To some people, the field of consulting is a running joke. Like analysts, the title of *consultant* is so slippery and ill defined that it can mean almost anything. Recruiting firms, public relations agents, and even engineering companies often label a wide swath of their employees as consultants, making it hard to understand exactly what a ⁹consultant is supposed to do. Indeed, the...

9. Which alternative to the underlined portion would NOT be grammatically acceptable?
- A. consultants; this makes it hard
 - B. consultants, and this makes it hard
 - C. consultants that make it hard
 - D. consultants, which makes it hard

ACT English: Beyond Using “Your Ear”

[4]

After the last one of the notes fades into the darkening sky, I glance back at the boys, who have been lulled by the wonder of the song. [D] I stop worrying about work, about how many toy cars might have gotten lost between there and home. Until then, I feel like everything is going to be just fine. [*]

Which choice makes the sentence most grammatically acceptable?

- A. **No Change**
- B. have disappeared
- C. disappear
- D. fade

ACT English: Redundancy

Every night while driving home from a hectic day at work, my three-year-old twins quarreling in the backseat, I take a short detour. I turn off the gridlocked highway, onto a stretch of Route 66 that is, surrounded by arid New Mexico hills. When we're nearly three miles into our detour, I roll down the windows. Looking pointedly into the rearview mirror, windows rolled down, I say something about not throwing anything out of the car, but neither boy is listening. I check my speed. [A] Carefully, I steer toward the fog line. "Here it is, boys!" I yell at the backseat, the passenger-side tires finding the rumble strips etched into the asphalt.

[2]

Which choice is least redundant in context?

- A. **No Change**
- B. into the rearview mirror, three miles into our detour,
- C. behind me by looking into the rearview mirror,
- D. into the rearview mirror,

ACT English: Details

Item 3

FLAG

disproven the naysayers. Using traditional Brazilian ingredients, such as, manioc root and even ants—in innovative ways, he has thrilled diners from around the world.

Still, Atala felt he could do more for his country and its cuisine. In 2012, he founded Instituto Atá to help promote lesser-known ingredients, particularly those of the Amazon basin, while working to protect Brazil's biodiversity. Hearts of palm, for example, were typically harvested from Brazil's wild juçara palms in an unsustainable way. Needing eight years to mature, the tree dies once its large heart is removed. Atala began persuading producers to cultivate Amazonian pupunha palms, which grow clusters of stems, each with a small heart. Careful harvesting ensures that the tree will live to yield more hearts, resulting in environmentally friendly production.

The writer wants to emphasize the positive experience diners have had at Atala's restaurant. Which choice best accomplishes that goal?

- A. **No Change**
- B. mystified
- C. shocked
- D. startled

ACT Classic - Math - Overview

Classic Math Structure

- 60 questions in 60 minutes
- 5 answer options
- Random content order
- Generally ascending order of difficulty
- “Broad and Shallow”

25. A plumber charges \$13.50 per hour for a plumbing job that requires more than 3 hours to complete. For any job requiring 3 hours or less, there is a flat charge of \$40.50. If h represents the number of hours the job requires, which of the following expressions gives the charge, in dollars, for a job requiring more than 3 hours to complete?

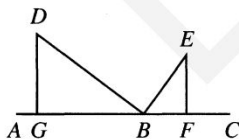
- A. $13.5h + 40.5$
- B. $13.5h$
- C. $13.5h - 40.5$
- D. $-13.5h + 40.5$
- E. 40.5

26. When $bd - k = y$ and $d \neq 0$, $b = ?$

- F. $\frac{y+k}{d}$
- G. $\frac{y-k}{d}$
- H. $k - y - d$
- J. $y - k + d$
- K. $y + k - d$

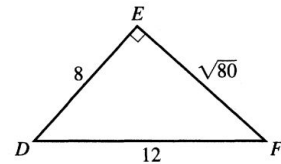
27. In the figure below, $A, G, B, F,$ and C are collinear; \overline{DB} is perpendicular to \overline{BE} ; \overline{DG} is perpendicular to \overline{AC} ; and \overline{EF} is perpendicular to \overline{AC} . If \overline{DB} is 20 units long, \overline{EB} is 10 units long, and \overline{EF} is 8 units long, how many units long is \overline{DG} ?

- A. 3
- B. 12
- C. 18
- D. 24
- E. 36



39. For right triangle $\triangle DEF$ with dimensions in inches as given below, what is $\cos F$?

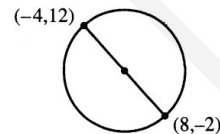
- A. $\frac{8}{\sqrt{80}}$
- B. $\frac{8}{12}$
- C. $\frac{\sqrt{80}}{12}$
- D. $\frac{12}{\sqrt{80}}$
- E. $\frac{12}{8}$



40. The length of a rectangle is 5 times its width. The perimeter of the rectangle is 96 ft. What is the width, in feet, of the rectangle?

- F. 8
- G. 9.6
- H. 16
- J. 19.2
- K. 40

41. A diameter of a circle that has endpoints $(-4,12)$ and $(8,-2)$, as shown below, is in the standard (x,y) coordinate plane. What point is the center of this circle?



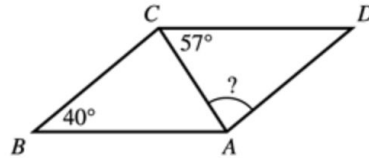
- A. (2, 5)
- B. (4, 10)
- C. (6, 7)
- D. (12, 14)
- E. Cannot be determined from the given information

ACT Enhanced - Math - Overview

Enhanced Math Structure

- 45 questions in 50 minutes
- 4 answer options instead of 5
- Random content order
- Generally ascending order of difficulty
- still “Broad and Shallow”

In parallelogram $ABCD$ below, \overline{AC} is a diagonal, the measure of $\angle ABC$ is 40° , and the measure of $\angle ACD$ is 57° . What is the measure of $\angle CAD$?



- A. 40°
- B. 57°
- C. 77°
- D. 83°

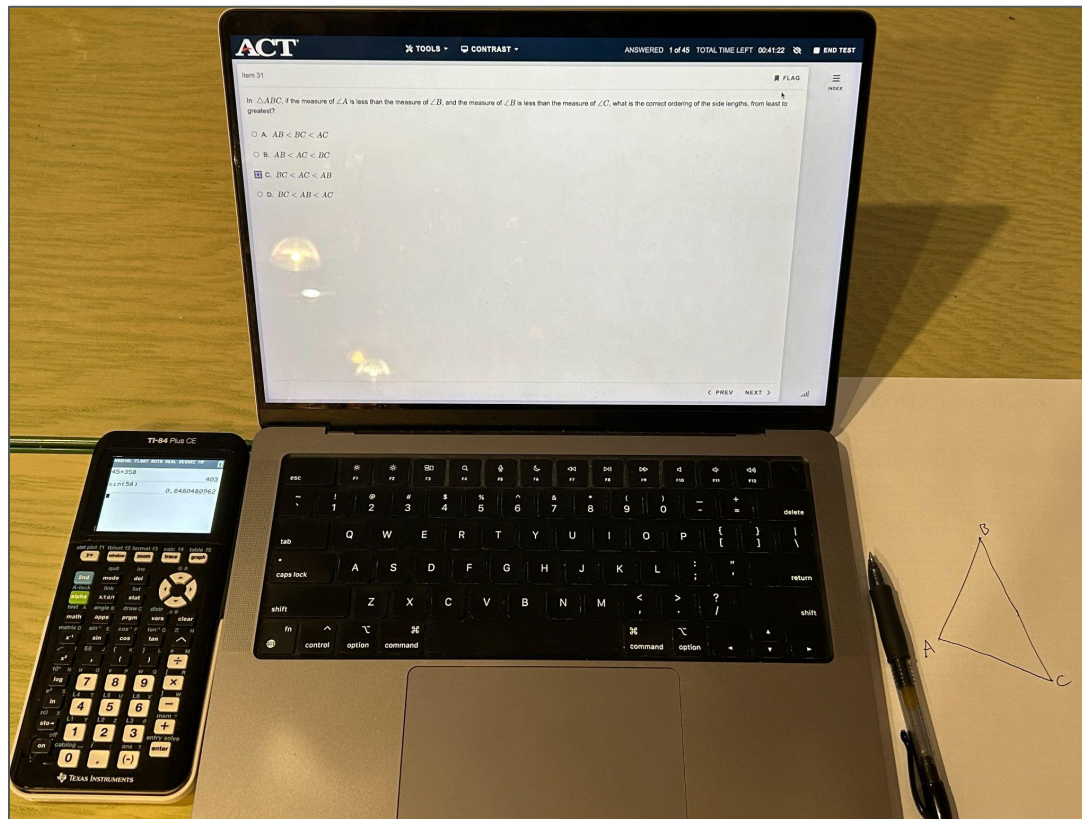
Which of the following expressions is equivalent to $(y + 7)^3$?

- A. $y^3 + 21y^2 + 147y + 343$
- B. $y^3 + 14y + 343$
- C. $y^3 + 14y + 49$
- D. $y^3 + 343$

On a trip, 2 sisters counted 1,430 vehicles. They divided the vehicles into categories: cars, trucks, and other. They noted the color of each as white, black, red, or other, as shown in the table. What is the probability that a randomly selected truck is black?

	White	Black	Red	Other	Total
Car	118	62	97	197	474
Truck	100	31	116	232	479
Other	86	85	94	212	477
Total	304	178	307	641	1,430

ACT Math: "Use Your Tools!"



ACT Math: Multiple Pathways & Backsolving

Cameron took 4 tests, and his scores were as follows: 100, 60, 80, and 30. Cameron took another test that was scored x . The mean score of the 5 tests he took is 72. What is the value of x ?

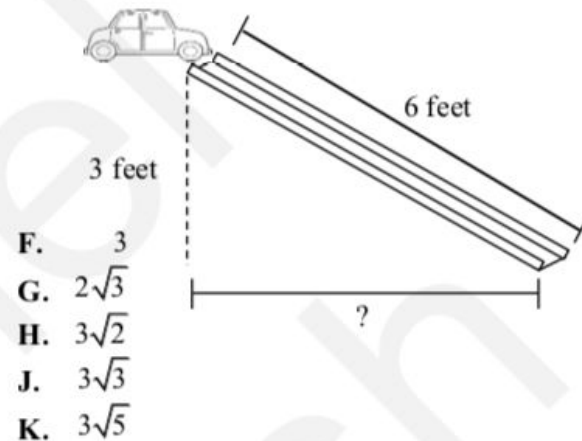
- A. 54
- B. 67.5
- C. 68.4
- D. 90

ACT Math: "Know Your Stuff!"

In $\triangle ABC$, $\angle A$ and $\angle C$ are congruent, and the measure of $\angle B$ is 143.6° . What is the measure of $\angle A$?

- A. 18.2°
- B. 36.4°
- C. 71.8°
- D. 143.6°

24. Heidi is building a race track for her toy cars. She uses 6 feet of track and starts at a height of 3 feet. What is the horizontal distance, in feet that a car will travel before it reaches the end of the track?



ACT Math: Esoteric Content, Easy Math

32. If $A = \begin{bmatrix} 5 & 7 \\ -3 & 10 \end{bmatrix}$ and $B = \begin{bmatrix} -5 & -7 \\ 3 & -10 \end{bmatrix}$, then $A - B = ?$

F. $\begin{bmatrix} -1 & -1 \\ 1 & -1 \end{bmatrix}$

G. $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

H. $\begin{bmatrix} -25 & -49 \\ -9 & -100 \end{bmatrix}$

J. $\begin{bmatrix} 12 & -12 \\ 7 & -7 \end{bmatrix}$

K. $\begin{bmatrix} 10 & 14 \\ -6 & 20 \end{bmatrix}$

26. Let $\mathcal{J}x\mathcal{J} = 3x + 2$ for all values of x . If $\frac{\mathcal{J}2t\mathcal{J}}{2} + 1 = 5$, what is the value of t ?

F. $\frac{1}{2}$

G. $\frac{2}{3}$

H. 1

J. $\frac{3}{2}$

K. 2

22. The imaginary number i is defined such that $i^2 = -1$. What is the value of $i + i^2 + i^3 + i^4 \dots + i^{24} + i^{25}$?

F. $-i$

G. i

H. -1

J. 0

K. 1

ACT Math: Takeaways

Each time Coin C is tossed, it lands faceup or facedown. The probability of landing faceup is 3 times the probability of landing facedown. In a certain game, the player wins \$1.00 when Coin C lands faceup and the player wins \$2.00 when Coin C lands facedown. To the nearest cent, what is the expected value of each toss of Coin C in this game?

- A. \$1.25
- B. \$1.33
- C. \$1.50
- D. \$1.67

During a particular experiment, 2 events, A and B, can each occur. Events A and B are mutually exclusive during this experiment. Which of the following probabilities is 0?

- A. $P(A)$
- B. $P(B)$
- C. $P(A \text{ or } B)$
- D. $P(A \text{ and } B)$

A tourism organization randomly selected 100 tourists finishing their summer visit to Spain. The organization asked them how many cities they had toured in the country. The table shows the results. Based on these data, for the population of tourists that visited Spain during the summer, what is the best estimate of the mean number of cities toured?

Number of cities	1	2	3
Number of tourists	10	40	50

- A. 0.8
- B. 2
- C. 2.4
- D. 3

The first 4 terms of a sequence are shown in the table. The sequence is defined by $a_1 = 2$ and $a_n = a_{n-1} + (n-1)^2$ for $n \geq 2$. What is the sixth term, a_6 , of this sequence?

a_1	a_2	a_3	a_4
2	3	7	16

- A. 68
- B. 57
- C. 41
- D. 32

ACT Classic - Reading - Overview

Classic Reading Structure

40 questions in 35 minutes

4 passages

10 questions each

1. Literary Narrative
2. Social Science
3. Humanities
4. Natural Science

Varied question types

Passage III

SOCIAL SCIENCE: This passage is adapted from "What Piketty Forgot," an essay by Noel Gozwa © 2014.

The French economist Thomas Piketty has apparently been crowned the world's leading expert on inequality. His exhaustive opus of economic history—the 700-page *Capital in the Twenty-First Century*—is improbably atop the New York Times bestseller list for nearly two months in early 2014. Some hailed his book as the most important study of inequality in over 50 years.

Piketty is hardly the first scholar to examine the linkage between capitalism and inequality. What sets him apart is his relentlessly empirical approach to the subject and his access to previously unused data to show the growing trends of income and wealth inequality. The database he compiled spans 300 years in 20 countries.

The principal cause of inequality, according to Piketty, is that investing large amounts of capital is far more lucrative than investing large amounts of labor. Returns on capital can be thought of as the payments that go to a small fraction of the population—the investor class—simply for having capital. In essence, the investor class makes money from money, without contributing to the "real economy." Piketty shows that after adjusting for inflation, the average global rate of return on capital has held steady, at about 5 percent, for the last 300 years (with a few exceptions, such as the World War II years).

The rate of economic growth, however, has shown a different trend. Before the Industrial Revolution, and for most of human history, economic growth was about 0.1 percent per year. But then, aided by the increasing use of fossil fuels, economic growth in the rapidly industrializing North increased during the 19th century to a then-staggering 1.5 percent. From the 1950s through the 1970s, growth rates began to accelerate in the rest of the world. While the United States hovered just below 2 percent, Africa's growth rates caught up with America's, and rates in Europe and Asia reached upwards of 4 percent.

But economic growth did little to reduce inequality. In fact, as Piketty demonstrates, wealth has grown ever more concentrated in the hands of the few even as the pie has gotten bigger. Throughout the 19th and early 20th centuries, the rate of return on capital exceeded that of growth, and inequality flourished in the industrialized world. In the 1950s, this trend began to shift—not due to redistributive economic policies, but rather as a result of historical calamities in the preceding decades. During this time, aggressive social, economic, and tax policies were ushered in by devastation and destruction. With these

policies in place, the recovery efforts after the Second World War accelerated growth, which for the first time in modern history exceeded the rate of return on capital—creating a middle class.

Economists of that era such as Simon Kuznets had argued that a rising tide of industrialization would initially create greater inequality; however, once people began to adapt to the new economic conditions, they would gain access to more wealth by becoming fully integrated into the economic order—in essence closing the wealth gap. This argument helped justify a quest for perpetual economic growth and free markets while simultaneously ignoring the problem of increasing income inequality.

In *Capital*, Piketty rigorously debunks the argument for perpetual growth, concluding that industrialization without any enforceable progressive taxation has actually created greater inequality. But if growth isn't the answer, what is? Piketty offers few remedies. His main prescription—a "progressive tax on global capital"—assumes that a 2-to-5-percent global growth rate is sustainable in the long run, and will reduce inequality by redistributing capital.

Piketty spends about four pages in his 700-page tome discussing limits to growth, but he fails to address the fact that limitless growth is completely unsustainable on a finite planet. Recent reports from NASA, the Intergovernmental Panel on Climate Change, and the U.S. government's National Climate Assessment all conclude that the planet cannot continue on the same path of economic growth if it is to sustain human life.

The traditional approach to inequality is to bring down those at the top while raising up those at the bottom. But to what level should we bring people, considering our finite planet? Do we want everyone to live the advertised suburban American middle-class lifestyle? Obviously that can't work, as it would require the resources of at least five planet Earths.

Piketty is right in noting that our political economy favors the growth of inequality, and that inequality in turn poisons our politics. But while creating a society that shares its prosperity is a noble goal, we need to address a much bigger gap than the one between rich and poor.

That is the gap between the demands of our economy and the capacity of our planet. Thankfully, scores of writers and activists have been studying the ecological, economic, social, and political dimensions of this crisis with the aim of identifying a just transition to a more workable system. Piketty has shown part of the problem, but he can't show how to solve it on his own.

21. The passage suggests that Piketty's treatise differs from other studies of inequality in all of the following ways EXCEPT:

- A. its use of previously unseen data.
- B. its doggedly empirical approach to the subject.
- C. the attention it pays to the limits to growth.
- D. its popularity with the reading public.

22. The main idea of the passage is that:

- F. Piketty has written an overly long book that did not deserve its best-seller status.
- G. Piketty's book successfully debunks the argument for perpetual growth.
- H. Piketty is better at describing economic disparities than at addressing potential solutions.
- J. The main source of inequality is that investment of capital is far more profitable than investment of labor.

23. The passage suggests that the American middle class grew most rapidly:

- A. during the nineteenth century.
- B. during the first half of the twentieth century.
- C. in the 1950s.
- D. in recent decades.

24. The passage indicates that the "advertised suburban American middle-class lifestyle" (lines 81–82) is:

- F. illusory to all but a small investment class.
- G. unsustainable on a global scale.
- H. achievable through a progressive tax on global capital.
- J. the product of redistributive economic policies.

25. The primary purpose of the sixth paragraph (lines 51–60) is to:

- A. chastise Simon Kuznets and other economists for failing to address the problem of income inequality.
- B. discuss an economic argument that Piketty successfully refutes.
- C. explain why twentieth-century captains of industry failed to address growing inequality.
- D. present an alternative theory for how to close the wealth gap.

26. The passage indicates that the rate of growth began to exceed the return on capital in the 1950s due to:

- F. post-war recovery effects.
- G. faith in the free market system.
- H. redistributive economic policies.
- J. the increasing use of fossil fuels.

27. As it is used in line 6, *hailed* most nearly means:

- A. announced.
- B. acclaimed.
- C. adopted.
- D. summoned.

28. The author most likely mentions reports from "NASA, the Intergovernmental Panel on Climate Change, and the U.S. government's National Climate Assessment" (lines 73–75) in order to:

- F. argue that Piketty's prescriptions cannot work given the planet's finite resources.
- G. discredit the traditional approach to addressing inequality.
- H. show that federal and international agencies are responding adequately to issues of sustainability.
- J. suggest that income inequality is not a major problem that needs to be addressed.

29. According to the passage, the average global rate of return on capital investments is typically around:

- A. 0.1 percent.
- B. 1.5 to 2 percent.
- C. 4 percent.
- D. 5 percent.

30. The passage answers all of the following questions EXCEPT:

- F. How many years of economic activity did Piketty study?
- G. How quickly did the economy grow before the Industrial Revolution?
- H. How has the United States' economic growth rate fared in the 21st century?
- J. When did Africa's growth rate begin to catch up with that of the United States?

ACT Enhanced - Reading - Overview

Enhanced Reading Structure

- 36 questions in 40 minutes
- 4 passages
 - 9 questions each
 1. Literary Narrative
 2. Informational
 3. Informational
 4. Informational
- Shorter reading passages?
 - Same passage length

INFORMATIONAL: This passage is from the book *The Botany of Desire: A Plant's-Eye View of the World* by Michael Pollan.

Originally cultivated in the Ottoman Empire, tulips were introduced to Europe at the end of the sixteenth century and became wildly popular in the seventeenth century.

One crucial element of the beauty of the tulip that intoxicated the Dutch, the Turks, the French, and the English has been lost to us. To them the tulip was a magic flower because it was prone to spontaneous and brilliant eruptions of color. In a planting of a hundred tulips, one of them might be so possessed, opening to reveal the white or yellow ground of its petals painted, as if by the finest brush and steadiest hand, with intricate feathers or flames of a vividly contrasting hue. When this happened, the tulip was said to have "broken," and if a tulip broke in a particularly striking manner—if the flames of the applied color reached clear to the petal's lip, say, and its pigment was brilliant and pure and its pattern symmetrical—the owner of that bulb had won the lottery. For the offsets of that bulb would inherit its pattern and hues and command a fantastic price. The fact that broken tulips for some unknown reason produced fewer and smaller offsets than ordinary tulips drove their prices still higher. Semper Augustus was the most famous such break.

The main purpose of the passage is to:

- A. highlight changes in the flower industry from the sixteenth century through today.
- B. examine the way certain plants have been raised and bred over the centuries.
- C. provide an overview of plant viruses and their impact on the flower market.
- D. explain a particular flower variation and how it was first perceived historically.

ACT Reading: Using Passage Structure

But as the intro plays to what I recognize as “Good Times” by the group Chic and I’m drawn into the living room because it’s a familiar hit song from the previous summer, I encounter a record on the turntable that defies categorization. Instead of the sweet female lead vocals of that disco smash, I hear something totally different and spot a baby-blue label on the black vinyl record I’ve never seen before. Even though it’s a twelve-inch disc, the size of an album, as I listen to the rhyming words being spoken—“*Singin’ on ‘n’ ‘n’ on ‘n’ on / The beat don’t stop until the break of dawn / Singin’ on ‘n’ ‘n’ on ‘n’ on on ‘n’ on / Like a hot buttered a pop da pop da pop dibbie dibbie pop da pop pop / Ya don’t dare stop*”—it hits me that this entire side is one long song.

Almost fifteen minutes long as it turns out. Or, to be exact, fourteen minutes and thirty-six seconds of pure fun laid over the thumping bass beat from the break of “Good Times” with sing-along words easy to remember and repeat. The record, I discover, is by an unknown group, the Sugarhill Gang, and is called “Rapper’s Delight.”

In the context of Passage B, the main point of the highlighted paragraph is that the author was:

- A. struck by the combination of new and established musical elements in the music he was hearing.
- B. uncomfortable with what he viewed as an unwelcome change to a favorite song.
- C. more interested in an unfamiliar album label than in the new music that was playing.
- D. convinced that the new form of music he was hearing would become more popular than disco.

ACT Reading: Tip-Off Phrases

5. According to the passage, information cocoons are:
- A. collections of inaccurate information.
 - B. aggregations of information that are difficult to access.
 - C. collections of information that are limited by the user's interests.
 - D. especially reliable aggregations of information.

ACT Reading: Takeaways

10. As it is used in line 76, *profound* most nearly means:

- F. severe.
- G. clever.
- H. deep.
- J. abstract.

36. As it is used in line 50, the word *enlightened* most nearly means:

- F. unburdened.
- G. mystified.
- H. realized.
- J. informed.

29. Which of the following statements best describes how the passages present Melissinos's belief about whether people should consider video games to be art?

- A. Passage A suggests Melissinos believes people should consider video games to be art, while Passage B suggests Melissinos believes people should decide for themselves.
- B. Passage A suggests Melissinos believes people should consider video games to be merely entertainment, while Passage B suggests Melissinos believes people should consider them to be art.
- C. Both passages suggest Melissinos believes people should consider video games that are used for educational purposes to be art.
- D. Both passages suggest Melissinos believes people should consider early video games to be art but more recent video games to be merely entertainment.

ACT Classic - Science - Overview

Classic Science Structure

- 40 questions in 35 minutes
- 5-7 passages of 5-7 questions each
- Variety of question types
- Minimal outside scientific knowledge (2-3 questions per test)

Passage VI

Some students performed studies of *static friction* (the frictional force between 2 surfaces that are at rest relative to each other) and *kinetic friction* (the frictional force between 2 surfaces that are sliding past each other).

Study 1

The students obtained three identically sized planes, each made of either glass, metal, or wood, and three 1.0 kg blocks, each made of either glass, metal, or wood. They looked up the *coefficient of static friction* (μ_s , a measure of the frictional force between a plane and a motionless block) for each combination of plane and block to be tested. With a plane in the horizontal position ($\theta = 0^\circ$, where θ was the angle between the plane and the table) and a block at the starting line (see Figure 1), the students increased θ until the moment the block began to slide. They recorded the angle at that moment as θ_s (see Table 1).

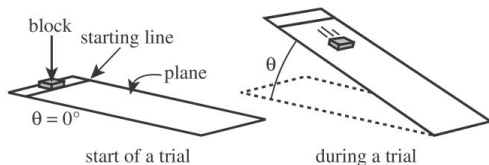


Figure 1

Trial	Plane	Block	μ_s	θ_s
1	glass	glass	0.93	43°
2	glass	metal	0.60	31°
3	glass	wood	0.19	11°
4	metal	metal	0.75	37°
5	metal	wood	0.53	28°
6	wood	wood	0.34	19°

Study 2

The students looked up the *coefficient of kinetic friction* (μ_k , a measure of the frictional force between a plane and a sliding block) for each combination of plane and block. For each trial, θ was initially 45° . Once a block was placed on the plane and released, it began to slide. The students reduced θ until it reached its critical value, θ_c , the angle at which the block's speed down the incline became constant (see Table 2).

Trial	Plane	Block	μ_k	θ_c
7	glass	glass	0.40	22°
8	glass	metal	0.25	14°
9	glass	wood	0.05	3°
10	metal	metal	0.58	30°
11	metal	wood	0.19	11°
12	wood	wood	0.25	14°

34. Based on the results of the studies, the absolute value of the difference between θ_s and θ_c was greatest for which of the following pairs of trials?
- F. Trials 1 and 7
- G. Trials 2 and 8
- H. Trials 3 and 9
- J. Trials 4 and 10
35. Based on the results of Study 2, as μ_k increased, θ_c :
- A. increased only.
- B. decreased only.
- C. increased and then decreased.
- D. decreased and then increased.

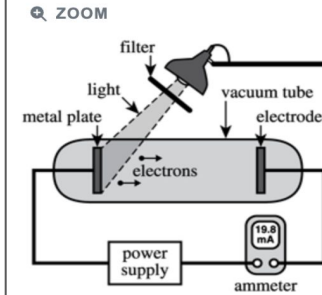
ACT Enhanced - Science - Overview

Enhanced Science Structure

- Optional section
- 40 questions in 40 minutes
- 7 passages of 5-6 questions
- Similar Content
- More outside scientific knowledge? Not evident yet

removable filter, a circuit with an ammeter to measure current, a power supply that could be adjusted to measure K , and a vacuum tube containing a metal plate and an electrode (see Figure 1).

Figure 1



The relationship between E and the frequency of light is given by the equation:

$$E = hf$$

where h is Planck's constant and f is the frequency of light. Based on the data for green light in Table 1, which of the following expressions could be used to determine the value of h ?

- A. $\frac{5.6 \times 10^{14} \text{ Hz}}{0.11 \text{ eV}}$
- B. $\frac{0.11 \text{ eV}}{5.6 \times 10^{14} \text{ Hz}}$
- C. $\frac{5.6 \times 10^{14} \text{ Hz}}{2.31 \text{ eV}}$

length of each fish was measured, in cm, with a ruler, and the SGR of each fish was calculated. The average SGR was then determined for each group (see Table 1).

Diet	Average SGR (percent/day)
Q	0.30
R	0.40
S	0.50
T	0.35

The following table gives

Diet	Percent protein
Q	52.5
R	48.0
S	41.1
T	38.1

Which of the following is the average SGR is of the results of Experiment

large pieces known as icebergs. Four students each explain iceberg calving.

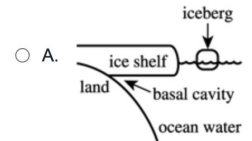
Student 1

Antarctic ice shelves melt due to the warming of the air above the surface of the ice during the summer. When the air temperature increases, the surface ice melts and water pools. The meltwater moves downward into the ice shelf, causing fractures to form. The accumulation of many fractures in the ice over many summers gradually leads to icebergs calving from an ice shelf.

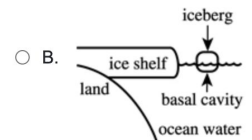
Student 2

Student 1 is correct that an increase in air temperature during the summer leads to surface ice melting and water pooling, causing fractures to form in the ice. However, the action of the meltwater alone is insufficient to produce fractures deep enough to cause calving. When the air temperature lowers at the beginning of winter, falling snow accumulates in the fractures, increasing

Q ZOOM



Q ZOOM



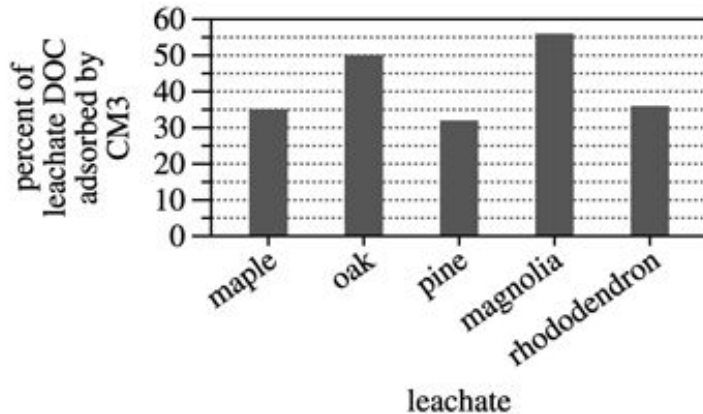
ACT Science: Look-Up

Study 3

Study 1 was repeated, substituting CM3 for CM1 (see Figure 3).

Figure 3

🔍 ZOOM



Based on the results of Study 3, the percent of leachate DOC adsorbed by CM3, averaged across the 5 types of leaves, is closest to which of the following?

- A. 10%
- B. 20%
- C. 30%
- D. 40%

ACT Science: Complex Look-Up

5. Which colony won approximately 50% of its fights?

- A. Colony 2
- B. Colony 4
- C. Colony 5
- D. Colony 7

access to the arena, and the time it took for them to discover the crickets was measured. The results were recorded in Table 1.

Colony	Species	Number of exploring ants	Time to find food (sec)
1	<i>Pheidole dentata</i>	20	30
2	<i>Pheidole dentata</i>	15	80
3	<i>Pheidole dentata</i>	24	18
4	<i>Pheidole dentata</i>	19	59
5	<i>Solenopsis invicta</i>	10	151
6	<i>Solenopsis invicta</i>	8	163
7	<i>Solenopsis invicta</i>	12	142
8	<i>Solenopsis invicta</i>	5	178

results obtained from this experiment.

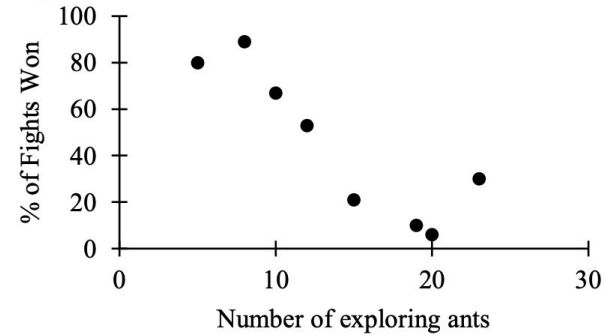
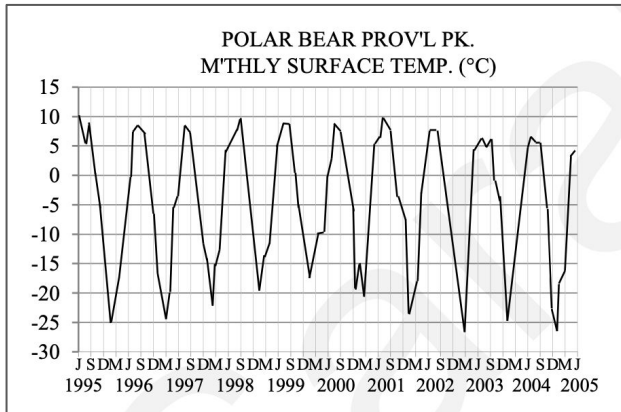
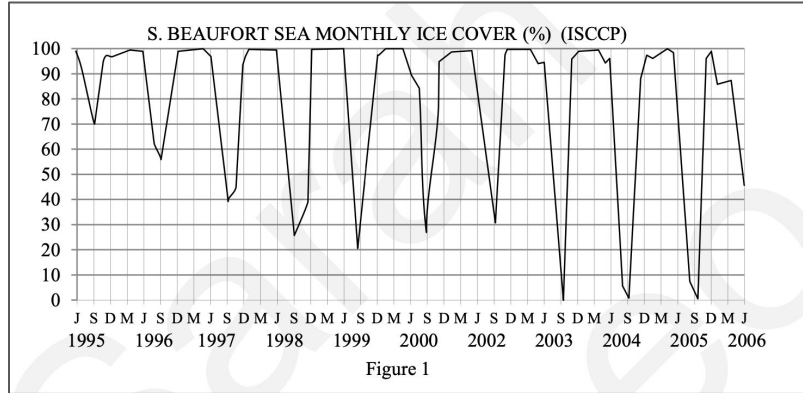


Figure 2

ACT Science: Yes/Yes/No/No



12. Scientists state that in recent years polar bears have had to swim increasingly long distances during warmer months to find seals. Is this assertion supported by the data presented?
- F. Yes, over time more of the ice cover was lost during summer months in the years from 1995 to 2005.
 - G. Yes, over time the average monthly surface temperature was consistently warmer in the years from 1995 to 2005.
 - H. No, there is no discernable pattern for the monthly ice cover in the years from 1995 to 2005.
 - J. No, the annual high temperature remained the same over the years from 1995 to 2005.

ACT Science: Experimental Structure

of each fish was calculated. The average SGR was then determined for each group (see Table 1).

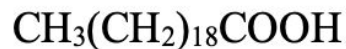
Diet (percent/day)	Average SGR
Q	0.30
R	0.40
S	0.50
T	0.35

Which of the following was a dependent variable in Experiment 1?

- A. Volume of seawater in each tank
- B. Specific growth rate
- C. Diet fed to the *A. percula*
- D. Stocking density of the *A. percula*

ACT Science: Outside Knowledge

arachidic acid



1. A molecule of arachidic acid contains how carbon atoms?
- A. 3
 - B. 18
 - C. 20
 - D. 22

1. To determine how many *C. elegans* moved toward each compound in Experiments 1 and 2, the students most likely used which of the following pieces of laboratory equipment?
- A. Balance
 - B. Graduated cylinder
 - C. Microscope
 - D. pH meter

6. Based on the description of *C. elegans* in the passage, a cell from a *C. elegans* lacks which of the following structures?
- F. Cell wall
 - G. Mitochondria
 - H. Nucleus
 - J. Plasma membrane

ACT Writing Test (Essay): Task

Current Structure

- 1 question in 40 minutes
- Optional

Future Structure

- Unchanged as far as we know

Essay Task

Write a unified, coherent essay in which you evaluate multiple perspectives on the debate over animal intelligence. In your essay, be sure to:

- analyze and evaluate the perspectives given
- state and develop your own perspective on the issue
- explain the relationship between your perspective and those given

Your perspective may be in full agreement with any of the others, in partial agreement, or wholly different. Whatever the case, support your ideas with logical reasoning and detailed, persuasive examples.

ACT Practice Tests: Score Report

Form Code	English 26	Composite Score 26
ACT 8	Math 27	
Test Date	Reading 25	
06/20/16	Science 25	

Score Report Key	
Your Answers	Question Types
<ul style="list-style-type: none"> + Correct O Omitted A-K Incorrect 	<ul style="list-style-type: none"> English U Usage & Mechanics R Rhetorical Skills Math E Pre-Algebra & Elementary Algebra A Intermediate Algebra & Coordinate Geometry G Plane Geometry & Trigonometry Reading S Social Studies & Sciences A Arts & Literature

SECTION 1: ENGLISH	
Question No.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Correct Answer	B G D J C H A J C J A H D G D F B G A J B J C H D F C F B F D J C H B G C J A J
Your Answer	+ + + + D + + + + + + + + + + + + D + + + A + + + + + + H + + + J + G D +
Type of Question	U R U R U U R U R R U R U U U U U R R R U R R R U R U U U R R U R R R U U R U U
Difficulty Level	M M E E M E M E E E E E E E M E E E M E M E E E E E E E M M E E E E E M M E
SECTION 1 continued...	
Question No.	41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75
Correct Answer	C H A G A G B H D F A G D F C G A H C F B F D G C H B J A H C J B J A
Your Answer	+ F C + + + + + + + + + A J + + B + A J + + B + D + + + + + + + + + D
Type of Question	U R R R R U R R R R U U U U R U U R R R U U U R U U U R R U U R U U U
Difficulty Level	M E E E E M M E E E M E E E M E M E M E H M M E M E E M E M H

SECTION 2: MATH	
Question No.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40
Correct Answer	E H C J A J A K C H A F C K B K C J E K C F C F B G D K C J B J B F B K D F B G
Your Answer	+ + + + + + + + + + H + + + + F + + + + + + + H + + + + H C + + + + + F + + + H

Preparing for the ACT

- Prep Targets:
 - Content
 - Memory
 - Habits
 - Strategies
 - Reflex Responses
- Long Term Change
 - Think Sports / Musical Instrument
 - ~~No Cramming!~~
- What Does Test Prep Involve?
 - Learning
 - Studying
 - Focused practice
 - Reflective review

ACT Preparation - Scheduling

- Make a Schedule
 - Consistency beats volume
 - Regularity is key
 - Think of test prep as another course
 - ~30 minutes of homework on most days
 - Practice tests are essential
 - Baseline to start
 - Every 4-5 weeks

- Be Patient: Improvement Takes Time

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		SAT		SAT	SAT		SAT	SAT	SAT	SAT	SAT
	ACT		ACT		ACT	ACT*		ACT	ACT		ACT

ACT not offered in New York State in July



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