



College Connect 101

College Application Assistance - Essays - Financial Aid Advisory - Test Prep

Test Student

College Connect 101

ACT 2Hr Diagnostic

Date: April 9, 2021



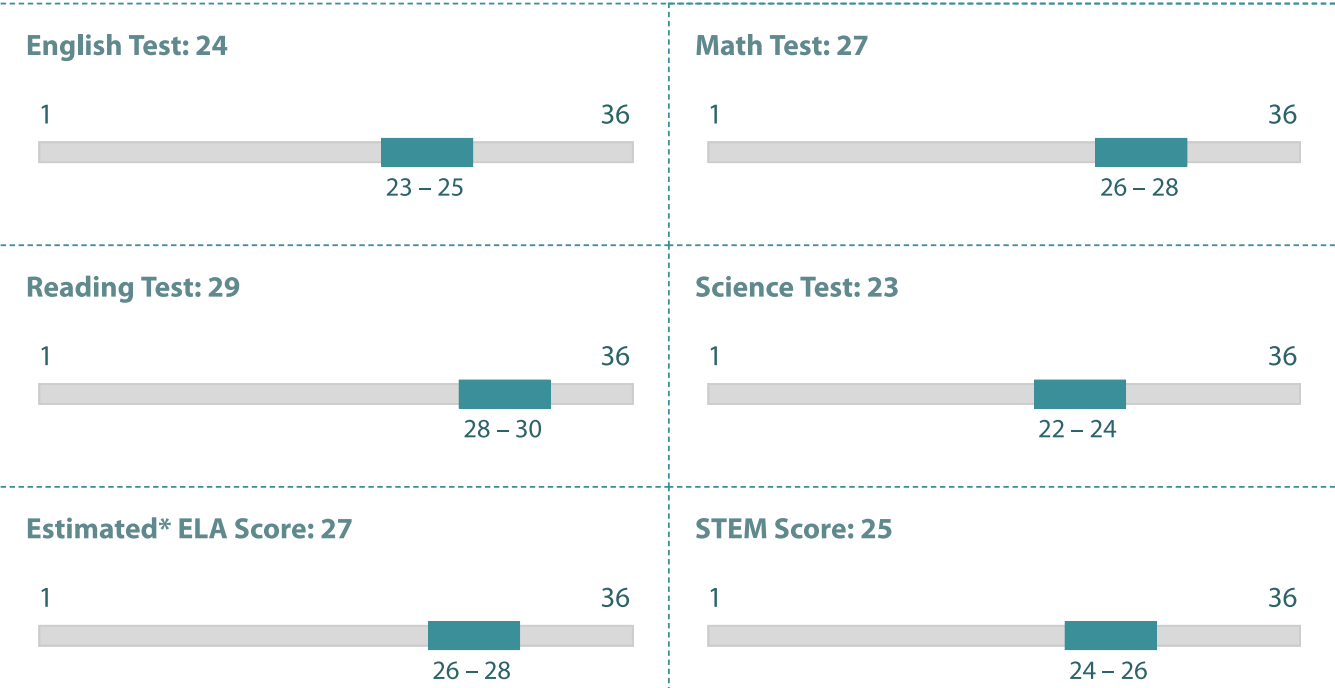
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Harvard University

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Overview

Composite Score: 26



* Essay score not entered

<div>English</div> <div><ul style="list-style-type: none">• Organization - 50.00%• Craft and Structure - 75.00%• Geometry - 100.00%• Punctuation - 50.00%• Grammar - 50.00%• Sentence Structure - 75.00%• Key Ideas - 66.67%• Style - 42.86%</div>	<div>Math</div> <div><ul style="list-style-type: none">• Algebra - 83.33%• Functions - 66.67%• Geometry - 66.67%• Number and Quantity - 100.00%• Analysis - 100.00%• Grammar - 50.00%</div>
<div>Reading</div> <div><ul style="list-style-type: none">• Craft and Structure - 80.00%• Close Reading - 85.71%• Central Ideas, Themes, and Summaries - 100.00%• Relationships - 100.00%</div>	<div>Science</div> <div><ul style="list-style-type: none">• Understanding - 75.00%• Synthesis - 50.00%• Analysis - 66.67%• Integration of Knowledge and Ideas - 100.00%• Key Ideas - 100.00%</div>

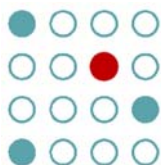
Understanding Your Scores

Your composite score combines area scores in English, Reading, Math and Science. It does not include your essay score.

Your subscores are based on particular question types within each test section. These scores assess skills specific to the English, Math and Science tests alone. Two will be related to particular questions in the English Test: Usage/Mechanics and Rhetorical Skills. Three will relate to specific types of questions on the Math Test: Pre-Algebra/Elem. Algebra, Algebra/Coord. Geometry, and Plane Geometry/Trigonometry. The last two refer to certain questions of the Reading Test: Social Studies/Sciences, and Arts/Literature. These scores are on a scale from 1 to 18.

Subscores Breakdown					
Subscore Area	Correct	Incorrect	Omitted	Total	Score (1-18)
English					
Organization	2	2	0	4	10
Punctuation	1	1	0	2	10
Grammar	4	4	0	8	10
Sentence Structure	6	2	0	8	14
Key Ideas	8	3	0	11	13
Style	3	4	0	7	8
Reading					
Craft and Structure	11	3	0	14	14
Close Reading	6	1	0	7	16
Central Ideas, Themes, and Summaries	1	0	0	1	18
Relationships	2	0	0	2	18
Integration of Knowledge and Ideas	2	0	0	2	18
Math					
Algebra	10	2	0	12	15
Functions	4	2	0	6	12
Geometry	3	1	0	4	14
Number and Quantity	1	0	0	1	18
Science					
Understanding	3	1	0	4	14
Synthesis	4	4	0	8	10
Analysis	4	1	0	5	15

Suggested Review



Look over any questions you answered incorrectly and try to solve them again. Did you just make some avoidable errors, or did you get questions wrong because you did not know how to solve them? You can find detailed answer explanations for these problems online.
































Create a study plan and schedule for your ACT preparation. Make sure you leave enough time to review and practice each concept you'd like to improve as well as some time to refresh your memory on concepts you're already familiar with.
























Correct	Incorrect	Omitted	Total	Scaled Score
23	14	0	37	24

	Subject Area	Correct	Incorrect	Omitted	Total
Organization	<div><div></div></div>	2	2	0	4
Craft and Structure	<div><div></div></div>	3	1	0	4
Geometry	<div><div></div></div>	1	0	0	1
Punctuation	<div><div></div></div>	1	1	0	2
Grammar	<div><div></div></div>	1	1	0	2
Sentence Structure	<div><div></div></div>	6	2	0	8
Key Ideas	<div><div></div></div>	6	3	0	9
Style	<div><div></div></div>	3	4	0	7

Answers														
Question:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Your Answer:	B	G	B	H	C	G	A	F	C	G	A	F	D	H
Correct Answer:	B	G	B	J	C	G	C	F	D	J	A	F	D	H
Topic:	SE5	ST3	SE1	SE1	O5	K2	K3	P1	P4	ST4	O3	K1	SE1	K2
Difficulty:	4	4	4	5	4	5	3	2	5	5	5	2	2	2
Question:	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Your Answer:	C	G	B	G	A	H	A	J	B	J	A	G	D	J
Correct Answer:	C	H	B	G	C	G	A	H	D	G	A	G	D	J
Topic:	P6	O2	SE5	P1	ST4	ST4	ST3	K2	K1	G2	P2	SE2	ST3	G1
Difficulty:	2	5	3	2	5	4	5	4	3	5	2	5	3	3
Question:	29	30	31	32	33	34	35	36	37					
Your Answer:	B	F	B	H	D	G	A	F	A					
Correct Answer:	D	F	B	G	D	J	A	H	A					
Topic:	P1	K3	G8	SE3	K4	ST1	SE7	O3	K1					
Difficulty:	5	4	2	2	4	5	4	5	5					

English Questions Breakdown					
Category/Topic		Correct	Incorrect	Omitted	Total
Organization		2	2	0	4
Paragraph Order and Unity (O3)		1	1	0	2
Sentence Order (O2)		0	1	0	1
Transitions (O5)		1	0	0	1
Craft and Structure		3	1	0	4
Point of View (P2)		1	0	0	1
Purpose (P1)		2	1	0	3
Geometry					
Angles (G1)		1	0	0	1
Punctuation		1	1	0	2
Colons (P4)		0	1	0	1
End-of-Sentence Punctuation (P6)		1	0	0	1
Grammar		1	1	0	2
Confusing Words (G8)		1	0	0	1
Subject-Verb Agreement (G2)		0	1	0	1
Sentence Structure		6	2	0	8
Misplaced Modifiers (SE5)		2	0	0	2
Tense and Voice Shifts (SE3)		0	1	0	1
Sentence Fragments (SE2)		1	0	0	1
Run-on Sentences (SE1)		2	1	0	3
Dependent Clauses (SE7)		1	0	0	1
Key Ideas		6	3	0	9
Writing Goals (K2)		2	1	0	3
Effect of a Phrase (K4)		1	0	0	1
Main Goal (K1)		2	1	0	3
Focus (K3)		1	1	0	2
Style		3	4	0	7
Precision (ST3)		3	0	0	3
Concision (ST4)		0	3	0	3
Tone (ST1)		0	1	0	1

[illegible]

Math Questions Breakdown					
Category/Topic		Correct	Incorrect	Omitted	Total
Algebra		10	2	0	12
Ratios and Percent (A11)		5	1	0	6
Multistep Arithmetic (A8)		2	0	0	2
Inequalities (A6)		1	1	0	2
Quadratics (A10)		2	0	0	2
Functions		4	2	0	6
Building Functions (F2)		0	1	0	1
Applying Functions (F1)		1	1	0	2
Logarithms and Trigonometry (F4)		1	0	0	1
Graphing Functions (F3)		2	0	0	2
Geometry		2	1	0	3
Triangles and Trigonometry (G7)		0	1	0	1
Angles (G1)		2	0	0	2
Number and Quantity		1	0	0	1
Complex Numbers (N2)					
Analysis		2	0	0	2
Interpolate and Extrapolate (A4)		1	0	0	1
Make Predictions (A5)		1	0	0	1
Grammar		3	3	0	6
Verb Forms (G4)		0	2	0	2
Pronoun Forms (G5)		2	1	0	3
Pronoun-Antecedent Agreement (G3)		1	0	0	1

Reading: 29




























Correct	Incorrect	Omitted	Total	Scaled Score
17	3	0	20	29

Reading Section Breakdown

Subject Area	Correct	Incorrect	Omitted	Total
Craft and Structure	8	2	0	10
Close Reading	6	1	0	7
Central Ideas, Themes, and Summaries	1	0	0	1
Relationships	2	0	0	2

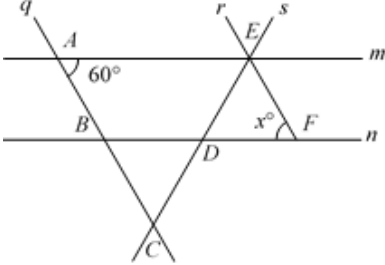
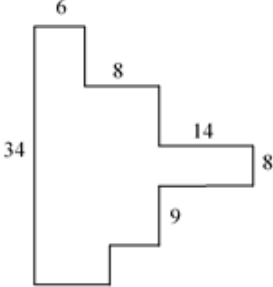
Answers														
Question:	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Your Answer:	B	J	B	F	B	F	D	G	A	F	A	H	D	G
Correct Answer:	B	J	B	F	C	F	D	G	A	G	A	H	D	G
Topic:	T2	C1	W2	C1	T2	C2	W2	P2	R2	C3	P1	P2	C1	R2
Difficulty:	3	3	2	1	1	2	3	5	3	2	1	4	4	2
Question:	15	16	17	18	19	20								
Your Answer:	B	F	B	G	D	F								
Correct Answer:	C	F	B	G	D	F								
Topic:	W2	C2	W1	C2	W1	I1								
Difficulty:	1	3	5	2	3	3								

Reading Questions Breakdown						
Category/Topic		Correct	Incorrect	Omitted	Total	
Craft and Structure		8	2	0	10	
Word Meaning (W2)		2	1	0	3	
Word Choice (W1)		2	0	0	2	
Point of View (P2)		2	0	0	2	
Purpose (P1)		1	0	0	1	
Paragraph Function (T2)		1	1	0	2	
Close Reading		6	1	0	7	
Details (C1)		3	0	0	3	
Drawing Conclusions (C2)		3	0	0	3	
Paraphrase (C3)		0	1	0	1	
Central Ideas, Themes, and Summaries						
Central Idea (I1)		1	0	0	1	
Relationships						
Comparative (R2)		2	0	0	2	

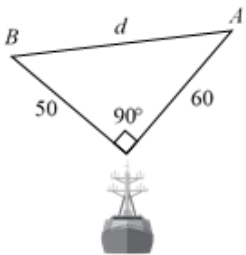
Science Questions Breakdown					
Category/Topic		Correct	Incorrect	Omitted	Total
Understanding		3	1	0	4
Locate Information in a Figure (U4)		2	0	0	2
Determine Relationships (U2)		1	0	0	1
Locate Information in the Text (U5)		0	1	0	1
Synthesis		4	4	0	8
Compare and Contrast Figures (S1)		0	1	0	1
Compare and Contrast Text (S2)		0	2	0	2
Evaluate Multiple Claims (S3)		4	1	0	5
Analysis		2	1	0	3
Make Predictions (A5)		1	1	0	2
Evaluate claims (A3)		1	0	0	1
Integration of Knowledge and Ideas		2	0	0	2
Identify Claim (A2)					
Key Ideas		2	0	0	2
Main Goal (K1)					

Question Topics

The following tables list the types of questions that appear in every section of the test.

English Section		
Code	Description	Example
G1	Adverbs and Adjectives: Distinguish between adverb and adjective forms of words, and determine which is necessary in particular situations.	"Lucinda bakes <u>extreme deliciously</u> brownies."
G1	Angles: Use properties of parallel lines and special sums of angles to compute unknown angle measures.	<p>"In the figure below, lines m and n are parallel, and transversals q and s intersect to form the equilateral triangle $\triangle BCD$. If $\angle E$ is equal to $\angle C$, what is the value of x?"</p> 
G2	Area and Perimeter: Compute the perimeter or area of triangles, rectangles, polygons, and composite geometric figures.	<p>"In the figure shown below, each pair of intersecting line segments meets at a right angle, and all the lengths are given in meters. What is the perimeter, in meters, of the figure?"</p> 
G2	Subject-Verb Agreement: Use the form of a verb that agrees with the subject of the sentence in number and person.	"Miguel <u>prefer</u> to run early in the morning, when it's still cool out."
G3	Circles: Compute the area and circumference of circles, and use relationships between angles, arcs, and distances within a circle.	"If the arc length of a sector of a circle with radius 1 is $\frac{\pi}{2}$, what is the measure of the sector's angle, in degrees?"
G3	Pronoun-Antecedent Agreement: Use the form of a pronoun that agrees with its antecedent in number and person, and that is correctly personal or non-personal.	"While Lee's day-job is in the service industry, <u>their</u> vocation is in the performing arts."
G4	Verb Forms: Identify and correct verbs that have incorrectly formed tenses: simple tenses for regular and irregular verbs, and complex tenses that use helping verbs.	"I couldn't believe what I had <u>sawn</u> : a whale—a real, live whale!"
G4	Concepts and Formulas: Use given geometric formulas or relations, and solve complex geometrical problems that require multiple concepts and planning.	"The volume of a sphere can be expressed by the equation $V = \frac{4}{3}\pi r^3$, where r is the radius. What would happen to the volume of a sphere if its radius is tripled?"
G5	Coordinate Geometry: Find coordinates, distances, slopes,	"The function $f(x) = x^3 + 3x$ is modified to create $g(x)$. If

	equations, and midpoints of lines and points on the coordinate plane. Identify vertices and centers of parabolas and circles. Apply translations, reflections, and rotations in the xy-coordinate plane.	$g(-x) = -g(x)$, how is $f(x)$ modified to create $g(x)$?"
G5	Pronoun Forms: Use the correct forms of pronouns, including object, subject, possessive, and reflexive pronoun forms.	"When UNICEF published <u>they</u> report on the treatment of refugees, it made headlines."

English Section (Continued)		
Code	Description	Example
G6	Comparatives and Superlatives: Correctly incorrectly formed comparatives or superlatives, and distinguish between comparatives and superlatives and select the correct forms for specific situations.	"We thought that we might save money by going to another mechanic, but the second quote was even <u>more worse</u> than the first."
G6	Length: Estimate or calculate lengths of line segments based on geometric figures or lengths of overlapping line segments.	"Point P is 6 units east of point M on a line, and point Q lies 9 units east of point N on the same line. If point N is 2 units east of point M , how many units are between point P and point Q ?"
G7	Prepositions: Use logical and idiomatic prepositions.	"Revolutionary fighters lined up their cannons <u>among</u> the edge of the ridge, even though the didn't have the ammunition to fire them."
G7	Triangles and Trigonometry: Use properties of similar and isosceles triangles, the pythagorean theorem, or basic trigonometric ratios to solve triangles. Relate basic trigonometric expressions to right triangles.	<p>"A radar on a boat records the positions of 2 islands, A and B, and the angle between them, as shown in the diagram below. If the units on the diagram are in miles, what is the distance d between islands A and B to the closest mile?"</p> 
G8	Confusing Words: Distinguish between the forms of commonly confused words (e.g., "their" vs. "there") and select the correct forms for specific situations.	"ER doctors may try to mitigate the <u>affects</u> of certain poisons by having patients consume charcoal "shakes," which prevent the absorption of poisons in the digestive tract."
G9	Idioms: Identify and correct unidiomatic expressions, and distinguish between different senses of idiomatic expressions and select the correct senses for specific situations.	"We want to encourage students to <u>aim in the direction of stars</u> because we believe that great ambition leads to great success."
G10	Pronoun Clarity: Identify pronouns that have unclear antecedents, and select clearer pronouns or substitute more specific nouns.	"Liu bought a used car from Steve, but <u>he</u> wasn't happy with the deal."
K1	Main Goal: Determine whether a passage satisfies a certain purpose stated as the writer's goal, and why it does or does not.	"Suppose the writer's goal had been to write an essay explaining why it is important to begin obedience training early in a dog's life. Would this essay accomplish this goal?"
K2	Writing Goals: Determine whether certain changes should be made, or which specific changes should be made to accomplish stated goals.	"At this point in the essay, the writer wants to add information that describes the appearance of the burial vessels. Which choice best accomplishes this goal?"
K3	Focus: Determine the relevance of material in terms of the paragraph or the passage as a whole, and delete irrelevant material.	"The writer is considering deleting the underlined phrase. Should the writer make this deletion?"
K4	Effect of a Phrase: Correctly identify the effect that a certain phrase or sentence has on a sentence, paragraph, or passage, especially in terms of how the meaning would change if the phrase or sentence were removed.	"If the preceding sentence were deleted, the essay would primarily lose:"
O1	Adding Information: Determine where a proposed addition	"After writing this essay, the writer came across the following

	should be added to the passage.	true statement in her notes. Where should this statement be added to the essay?"
O2	Sentence Order: Reorganize sentences within a paragraph to ensure the logical progression of events and ideas.	"For the sake of logic and coherence, Sentence 4 should be placed:"
O3	Paragraph Order and Unity: Reorganize paragraphs within a passage to ensure the logical progression of events and ideas.	"For the sake of logic and coherence, Paragraph 2 should be placed:"
O4	Introductions: Select appropriate introductions for paragraphs or passages.	"Which of the following choices provides the most effective introduction for Paragraph 2?"
O5	Transitions: Select sentences that provide appropriate transitions between parts of a paragraph, or between two paragraphs.	"Which of the following choices provides the most effective transition between Paragraph 1 and Paragraph 2?"
O6	Conclusions: Select appropriate concluding sentences for paragraphs or the passage as a whole.	"Which of the following choices provides the most effective conclusion for this essay as a whole?"

English Section (Continued)		
Code	Description	Example
O7	Transition Words: Select appropriate transitional words and phrase to express logical relationships between parts of a sentence, sentences, or paragraphs.	"There are 28 Jesuit colleges and universities in the United States. <u>As a result</u> , students are not required to be Catholics in order to attend these institutions."
P1	Commas: Identify problems with comma use, and delete unnecessary commas, or use commas for various purposes.	"The <u>deer, on the other hand were not so pleased</u> with the new fence."
P1	Purpose: Identify or infer the purpose of a passage as a whole	"The primary purpose of the passage is to:"
P2	Apostrophes: Identify situations where apostrophes are needed to form possessives, where they have been incorrectly added to plural nouns, or other errors.	"Doctors were concerned about the legislation's potential effects on <u>patients right's</u> ."
P2	Point of View: Understand the point of view of authors or those mentioned in passages	"The point of view from which the passage is told is best described as that of:"
P3	Semicolons: Delete unnecessary semicolons, or use semicolons to connect independent clauses.	"Most forensic science is shaky, <u>at best; however, DNA</u> testing is based on solid science."
P4	Colons: Delete unnecessary colons, or use colons to introduce examples and elaborations.	"Murano glass chandeliers are <u>known for: their elaborate</u> , colorful ornamentation."
P5	Dashes: Delete unnecessary dashes, or use dashes to set off parenthetical elements.	"While people typically think of Dinosaurs as <u>reptiles—and older</u> classifications categorize them as "mammal-like reptiles," they may actually have been much more closely related to mammals than reptiles. "
P6	End-of-Sentence Punctuation: Use the correct punctuation to logically end a complete sentence.	"So, how do schools get <u>funded</u> . Most schools receive"
SE1	Run-on Sentences: Identify and correct run-on sentences, including comma splices and fused sentences.	"Transportation is only the second-largest source of <u>greenhouse gases, most greenhouse gases</u> actually come from burning fuel for electricity."
SE2	Sentence Fragments: Correct sentence fragments by connecting phrases to independent clauses.	"There was a major flaw with the <u>phone. An</u> exploding battery."
SE3	Tense and Voice Shifts: Correct inappropriate and illogical shifts in verb tense and voice within sentences, or between sentences in the passage.	"I slept in that morning, and <u>miss</u> my bus as a result. I ended up arriving nearly an hour late."
SE4	Pronoun Shifts: Correct inappropriate and illogical shifts in pronoun use, where different pronouns are used to refer to the same antecedent.	"When you develop your reading skills, <u>one develops</u> your ability to learn all kinds of things."
SE5	Misplaced Modifiers: Correctly place modifiers next to the objects that they modify, and correct confusing modifier placement.	" <u>Sparkling in the pan</u> , the panner noticed a few flecks of gold."
SE6	Parallel Structure: Ensure that phrases in sentences have parallel structure, including phrases in lists or series and phrases around correlative conjunctions.	"You must not only make a plan, but also <u>you should execute it</u> ."
SE7	Dependent Clauses: Identify and correct errors in which dependent marker words are added to clauses that should be independent or where they are omitted from dependent clauses where they are needed, and correct punctuation and conjunctions used with dependent clauses.	"While I loved the <u>city, though</u> I hated the smell."
ST1	Tone: Identify and correct words and phrases that deviate from	"When they at last mounted the towering peak, and could see

	the overall style and tone of the passage.	for the first time the land over the ridge, the explorers were awestruck: a <u>very, very big</u> lake sprawled before them, stretching even to the horizon."
ST2	Clarity: Revise clunky, awkward sentences to improve their clarity.	" <u>The authority is, that is, vested in the people, that of the congress—their power—it's from the people.</u> "
ST3	Precision: Make word choices that precisely express the intended meaning of a sentence.	"Everyone thought that a rough plan would be enough, but the plan ended up being so <u>muffled</u> that nobody on the team knew exactly what their role was."
ST4	Concision: Revise wordy or redundant phrases so that they are more concise.	"When it came to expressing his thoughts, he did not believe <u>the idea that he should not express his ideas when they were unconventional ideas.</u> "
ST5	Appropriate Conjunctions: Use appropriate conjunctions to signal logical relationships between clauses (e.g. "and" vs. "but" vs. "so").	"Around half of the attendees left when the air conditioning malfunctioned, <u>so</u> the rest complained to the organizers."
T1	Role of Sentence or Phrase : Analyze how sentence(s) or phrase(s) relate to the whole passage (purpose/role of sentence)	"The author states that "the witness's testimony varied over the course of the trial" (lines 7-10) in order to:"
T2	Paragraph Function: Identify or infer the function of paragraphs	"Which of the following best describes the way the second paragraph functions in the passage?"
T3	Overall Structure: Analyze the overall structure of a passage	"The passage as a whole can primarily be characterized as the narrator's:"
W1	Word Choice: Analyze how specific words or phrases shape the meaning or tone of passages	"The author calls some of the early films "groundbreaking" in line 22 most likely because they:"
W2	Word Meaning: Interpret words and phrases as they are used in passages	"As it is used in line 2, the word "favor" most nearly means:"

Math Section

Code	Description	Example																																																																				
A1	Absolute Value: Identify and solve inequalities or equations involving absolute value signs, and understand them in terms of distance.	" $9 - 21 - 8 + 3 - 16 = ?$ "																																																																				
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A2	Algebraic Principles: Solve questions and draw conclusions based on the fundamental principles of algebra (identifying expressions, first-degree equations etc.), making use of rounding and scientific notation.	"In scientific notation, $0.00000729 = ?$ "																																																																				
A2	Create a Figure: Translate information into a table, graph, or diagram.	"Which of the following figures best depicts the location of the treeline? "																																																																				
A3	Evaluate claims: Determine whether an idea, hypothesis, prediction, or conclusion is consistent with or supported by the information provided, or vice-versa.	"The <i>reproductive efficiency</i> of a cotton plant is defined as the total number of seeds released by a cotton plant divided by the number of bolls produced. The researchers conclude that S2 plants have a lower average reproductive efficiency than S1 plants. Which of the following could explain this observation?"																																																																				
A3	Complex Equations: Manipulate complex algebraic expressions and identify where they are undefined.	"Let u , v , and w be positive integers such that $u = \frac{3v}{5}$ and $v = \frac{4}{w}$. Which of the following expresses w in terms of u ?"																																																																				
A4	Interpolate and Extrapolate: Perform interpolation or extrapolation using data in a table or graph.																																																																					

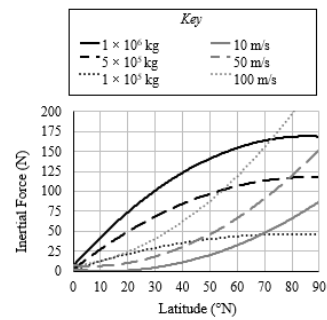


Figure 3

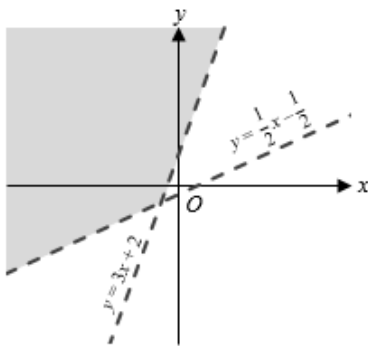
Note: An object with a mass of 5×10^5 kg was measured at different velocities, and objects of different masses were measured at 50 m/s.

According to Figure 3, the inertial force acting on an object with a mass of 7.5×10^5 kg traveling at 50 m/s at 90° N latitude would be:

- A. less than 50 N.
- B. between 50 N and 100 N.
- C. between 100 N and 150 N.
- D. greater than 150 N.

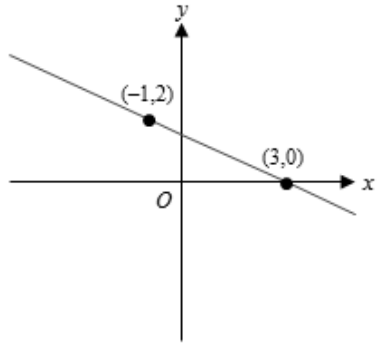
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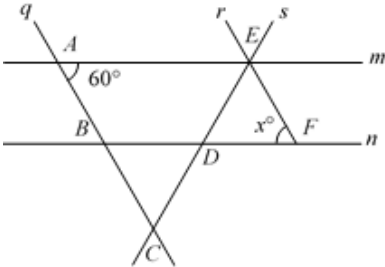
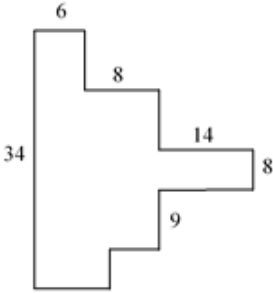
A4	Components of Algebra: Use the basic components of algebra such as substitution, combining like terms, and addition or subtraction of expressions.	"If a is half of b , and c is 3 times a , how many times greater than b is c ?"
A5	Make Predictions: Analyze information provided in order to make a prediction (ex: the results of a new trial).	<p>"Based on Figure 2, if the scientists had measured the UV absorbance of circular DNA in 95% DMF at 75° C, the absorbance would most likely have been:</p> <ul style="list-style-type: none"> A. lower than 0.2 B. between 0.2 and 0.35 C. between 0.35 and 0.5 D. greater than 0.5
A5	Exponents: Work with powers and roots of 2, 3, or any positive integer.	"If x is a real number such that $\sqrt{x} = 2$, then $x^2 + x^3 = ?$ "

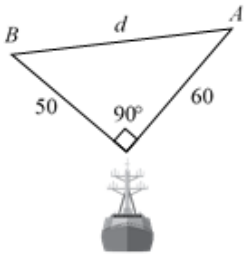
Math Section (Continued)																
Code	Description	Example														
A6	Inequalities: Solve linear, simple, or compound inequalities, and match them to their graphs on the number line.	<p>"Which of the following systems of inequalities represents the shaded region on the graph below?"</p>  <p>"</p>														
A7	Linear Equations and Systems: Solve simple, one-step linear equations, as well as systems involving two linear equations.	<p>"If $6z + 2 = 5 - 11z$, then $z = ?$"</p>														
A8	Multistep Arithmetic: Solve arithmetic problems (e.g. unit conversions, comparing percentages/averages) that require multiple steps, planning, or strategic manipulation.	<p>"Phil and Jose are purchasing boards. Phil has a \$6 budget for purchasing boards and Jose has a \$9 budget for purchasing boards. If fourteen boards cost \$26, how many more boards can Jose purchase than Phil? "</p>														
A9	Polynomials: Multiply binomials. Add, subtract, multiply, and apply the remainder theorem to polynomials.	<p>"If $\frac{a}{b} = \frac{x - \frac{1}{2}}{x + \frac{1}{3}}$ and $x \neq -\frac{1}{3}$, which of the following expressions is equal to $\frac{a}{b}$?</p> <p>I. $x^2 - \frac{1}{6}x - \frac{1}{6}$ II. $x^2 - \frac{1}{6}$ III. $x^2 + \frac{1}{2}x - \frac{1}{6}$</p> <p>"</p>														
A10	Quadratics: Factor and solve quadratic equations, and match simple quadratic inequalities to their graphs on a number line.	<p>"Which values of x satisfy the equation $x^2 - 16x = 0$?"</p>														
A11	Ratios and Percent: Solve word or multi-step arithmetic problems relating to rates, proportions, percentages, or scale factors.	<p>"In a drama class of 60 students, $\frac{1}{4}$ participate in musical theater. Of the students in musical theater, $\frac{1}{3}$ do not play an instrument. How many students in the class participate in musical theater and play an instrument?"</p>														
A12	Slope: Understand the meaning of slope and determine the slope of a line from an equation.	<p>"The table below shows values of x and $f(x)$ for the function $f(x) = mx + 4$. What is the value of m?</p> <table><tr><th>x</th><th>$f(x)$</th></tr><tr><td>0</td><td>4</td></tr><tr><td>1</td><td>7</td></tr><tr><td>2</td><td>10</td></tr><tr><td>3</td><td>13</td></tr><tr><td>4</td><td>16</td></tr><tr><td>5</td><td>19</td></tr></table> <p>"</p>	x	$f(x)$	0	4	1	7	2	10	3	13	4	16	5	19
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A13	Word and Real-World Problems: Solve word problems	<p>"In order to win an election, the top candidate must receive at</p>														

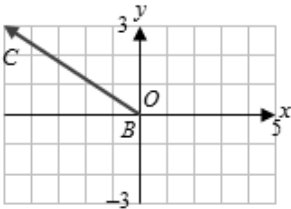
relating to topics such as money or common unit conversions. Build functions, expressions, equations, or inequalities for common algebra settings (e.g. rate, distance, cost/demand/profit).

least 30 votes more than the runner-up candidate. If the top candidate receives a votes, and the runner-up candidate receives b votes, which of the following expresses this rule?"

Math Section (Continued)		
Code	Description	Example
F1	Applying Functions: Evaluate linear, polynomial, composite, and trigonometric functions at given values. Identify function asymptotes.	"If $f(x) = 2x^2 + 1$ and $g(x) = \frac{1}{x}$, what is $f(g(2))$?"
F2	Building Functions: Build linear, exponential, inversely proportional, or composite functions.	"A strain of bacteria doubles during every half-hour growth interval, and began with an initial population of 50 bacteria. Which of the following equations accurately expresses the growth of the strain per hour?"
F3	Graphing Functions: Identify and relate graphs to given functions, translate graphs vertically or horizontally, and draw conclusions from graphs.	<p>"Which of the following equations represents the line below?"</p> 
F4	Logarithms and Trigonometry: Use unit circle trigonometry and basic identities. Exhibit knowledge of logarithms.	"What is the value of $\log_2 128 - \log_2 64$?"
F5	Modeling Using Functions: Understand the concept of modelling a real-life situation in a function, and compare graphical models to the real-life of a situation that is given.	<p>"Otto is a traveling beach salesman. He sells beach balls for \$17 and bags of cotton candy for \$4. Every day, he travels along the same beach, and a fisherman gives him a \$2 tip. Which of the following expressions represents Otto's daily profit, in dollars, if he sells b beach balls and c bags of cotton candy?"</p>
F6	Properties of Functions: Understand the concept of a function, how to determine its domain and range, and the use of function notation.	"Which of the following graphs function $f(x)$, $g(x)$, and $h(x)$ for $-2 < x \leq 2$? $f(x) = -x^2 - 1$, $g(x) = \frac{x}{2} + \frac{1}{2}$, $h(x) = 1 - x$ "
F7	Sequences: Identify and extend recursive, arithmetic, or geometric sequences.	"What is the sum of the first 12 terms of the arithmetic sequence 19, 13, 7, 1...?"
G1	Adverbs and Adjectives: Distinguish between adverb and adjective forms of words, and determine which is necessary in particular situations.	"Lucinda bakes <u>extreme deliciously</u> brownies."

Math Section (Continued)		
Code	Description	Example
G1	Angles: Use properties of parallel lines and special sums of angles to compute unknown angle measures.	<p>"In the figure below, lines m and n are parallel, and transversals q and s intersect to form the equilateral triangle $\triangle BCD$. If $\angle E$ is equal to $\angle C$, what is the value of x?"</p> 
G2	Area and Perimeter: Compute the perimeter or area of triangles, rectangles, polygons, and composite geometric figures.	<p>"In the figure shown below, each pair of intersecting line segments meets at a right angle, and all the lengths are given in meters. What is the perimeter, in meters, of the figure?"</p> 
G2	Subject-Verb Agreement: Use the form of a verb that agrees with the subject of the sentence in number and person.	"Miguel <u>prefer</u> to run early in the morning, when it's still cool out."
G3	Circles: Compute the area and circumference of circles, and use relationships between angles, arcs, and distances within a circle.	"If the arc length of a sector of a circle with radius 1 is $\frac{\pi}{2}$, what is the measure of the sector's angle, in degrees?"
G3	Pronoun-Antecedent Agreement: Use the form of a pronoun that agrees with its antecedent in number and person, and that is correctly personal or non-personal.	"While Lee's day-job is in the service industry, <u>their</u> vocation is in the performing arts."
G4	Verb Forms: Identify and correct verbs that have incorrectly formed tenses: simple tenses for regular and irregular verbs, and complex tenses that use helping verbs.	"I couldn't believe what I had <u>sawn</u> : a whale—a real, live whale!"
G4	Concepts and Formulas: Use given geometric formulas or relations, and solve complex geometrical problems that require multiple concepts and planning.	"The volume of a sphere can be expressed by the equation $V = \frac{4}{3}\pi r^3$, where r is the radius. What would happen to the volume of a sphere if its radius is tripled?"
G5	Coordinate Geometry: Find coordinates, distances, slopes, equations, and midpoints of lines and points on the coordinate plane. Identify vertices and centers of parabolas and circles. Apply translations, reflections, and rotations in the xy-coordinate plane.	"The function $f(x) = x^3 + 3x$ is modified to create $g(x)$. If $g(-x) = -g(x)$, how is $f(x)$ modified to create $g(x)$?"

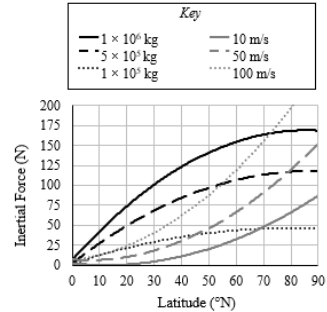
Math Section (Continued)		
Code	Description	Example
G5	Pronoun Forms: Use the correct forms of pronouns, including object, subject, possessive, and reflexive pronoun forms.	"When UNICEF published <u>they</u> report on the treatment of refugees, it made headlines."
G6	Comparatives and Superlatives: Correctly incorrectly formed comparatives or superlatives, and distinguish between comparatives and superlatives and select the correct forms for specific situations.	"We thought that we might save money by going to another mechanic, but the second quote was even <u>more worse</u> than the first."
G6	Length: Estimate or calculate lengths of line segments based on geometric figures or lengths of overlapping line segments.	"Point P is 6 units east of point M on a line, and point Q lies 9 units east of point N on the same line. If point N is 2 units east of point M , how many units are between point P and point Q ?"
G7	Prepositions: Use logical and idiomatic prepositions.	"Revolutionary fighters lined up their cannons <u>among</u> the edge of the ridge, even though they didn't have the ammunition to fire them."
G7	Triangles and Trigonometry: Use properties of similar and isosceles triangles, the pythagorean theorem, or basic trigonometric ratios to solve triangles. Relate basic trigonometric expressions to right triangles.	<p>"A radar on a boat records the positions of 2 islands, A and B, and the angle between them, as shown in the diagram below. If the units on the diagram are in miles, what is the distance d between islands A and B to the closest mile?"</p> 
G8	Confusing Words: Distinguish between the forms of commonly confused words (e.g., "their" vs. "there") and select the correct forms for specific situations.	"ER doctors may try to mitigate the <u>affects</u> of certain poisons by having patients consume charcoal "shakes," which prevent the absorption of poisons in the digestive tract."
G9	Idioms: Identify and correct unidiomatic expressions, and distinguish between different senses of idiomatic expressions and select the correct senses for specific situations.	"We want to encourage students to <u>aim in the direction of stars</u> because we believe that great ambition leads to great success."
G10	Pronoun Clarity: Identify pronouns that have unclear antecedents, and select clearer pronouns or substitute more specific nouns.	"Liu bought a used car from Steve, but <u>he</u> wasn't happy with the deal."
N1	Applying Properties of Exponents: Apply properties of rational exponents and write powers of 10 using exponents.	"If $10^{3x+2} = \frac{(10^5)^{-2} (10^4)^{10^2}}{10^2}$, what is the value of x ?"
N2	Complex Numbers: Exhibit knowledge of the complex number system. Multiply, add, and subtract complex numbers.	"What is the value of i^{1023} ? (Note: $i = \sqrt{-1}$)"
N3	Concepts and Factors: Apply number properties involving prime factorization, greatest common factors, lowest common multiples, and even/odd numbers.	"What is the least common multiple of 12 , 48 , and 72 ?"
N4	Fractions: Recognize equivalent fractions and order different fractions.	"Danielle, Arthur, and Carlos are responsible for bringing marshmallows to a party. Danielle has $1\frac{3}{4}$ bags, Arthur has $4\frac{2}{3}$, and Carlos has $3\frac{1}{2}$. How many bags do they have in total?"

N5	Matrices: Apply addition, subtraction, and scalar or regular multiplication of matrices.	" $\begin{bmatrix} -1 & 2 \\ 2 & 4 \end{bmatrix} \times \begin{bmatrix} 4 \\ 2 \end{bmatrix} = ?$ "
N6	Number Lines: Use the number line to locate numbers and to calculate distances.	"Which of the following number lines represents the solution of the inequality $1 < \frac{1}{x}$?"
N7	Properties of Real Numbers: Apply, analyze, and draw conclusions on properties of real numbers and the real number system, including properties of irrational numbers.	"Which of the following graphs functions $f(x)$, $g(x)$, and $h(x)$ for $-2 < x \leq 2$? $f(x) = -x^2 - 1$ $g(x) = \frac{x}{2} + \frac{1}{2}$ $h(x) = 1 - x$ "
N8	Vectors: Use relations involving addition, subtraction, and scalar multiplication of vectors.	<p>"Vector \vec{BC} is shown in the standard (x,y) coordinate plane below. Which of the following is the component form of \vec{BC}?"</p> 

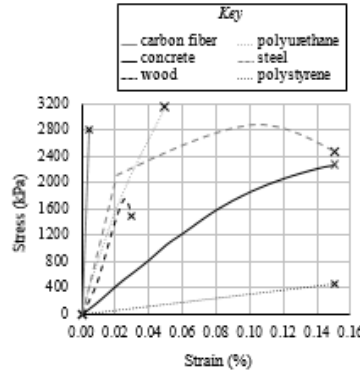
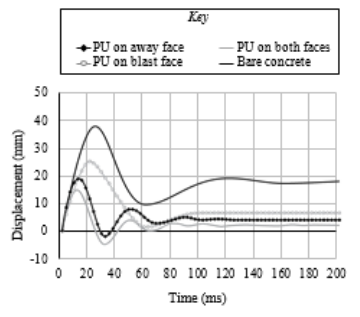
Reading Section		
Code	Description	Example
C1	Details: Locate details ranging from basic facts to subtle information requiring interpretation	"According to the passage, when is user engagement with the product the greatest?"
C2	Drawing Conclusions: Draw conclusions ranging from simple to complex, based on information in passages	"It can reasonably be inferred from the passage that Anthony:"
C3	Paraphrase: Paraphrase statements as they are used	"When the author says that she is "extending the offer" (line 12), she most likely means that she:"
I1	Central Idea: Identify or infer a topic, central idea, or theme	"One of the main points that the author seeks to make in the passage is that:"
I2	Summarize: Summarize key supporting ideas and details	"As described in the passage, the effect the Mars Rover has had on space exploration can best be summarized by which of the following statements?"
P1	Purpose: Identify or infer the purpose of a passage as a whole	"The primary purpose of the passage is to:"
P2	Point of View: Understand the point of view of authors or those mentioned in passages	"The point of view from which the passage is told is best described as that of:"
R1	Order Events: Order sequences of events provided in the passage	"According to the narrator, what did Dr. Henry do prior to publishing his paper?"
R2	Comparative: Identify or understand comparative relationships	"Which of the following best describes the difference between the narrator's experience at the stadium and the narrator's experience at the auditorium?"
R3	Cause-Effect: Identify or understand cause-effect relationships	"It can logically be inferred from the passage that the reason it Heather and Lisa have not seen each other for a few months is because:"
T1	Role of Sentence or Phrase : Analyze how sentence(s) or phrase(s) relate to the whole passage (purpose/role of sentence)	"The author states that "the witness's testimony varied over the course of the trial" (lines 7-10) in order to:"
T2	Paragraph Function: Identify or infer the function of paragraphs	"Which of the following best describes the way the second paragraph functions in the passage?"
T3	Overall Structure: Analyze the overall structure of a passage	"The passage as a whole can primarily be characterized as the narrator's:"
W1	Word Choice: Analyze how specific words or phrases shape the meaning or tone of passages	"The author calls some of the early films "groundbreaking" in line 22 most likely because they:"
W2	Word Meaning: Interpret words and phrases as they are used in passages	"As it is used in line 2, the word "favor" most nearly means:"

Science Section

Code	Description	Example																																																																						
A1	Support Claim: Analyze how sentences offer reasons or support a claim	"The author uses the description of the tax laws in Connecticut in order to make the point that:"																																																																						
A1	Apply Relationships: Use simple and complex mathematical relationships that exist between data.	<div><table><caption>Table 1</caption><thead><tr><th></th><th colspan="4">Inhibition Zone Diameter (mm)</th></tr><tr><th></th><th><i>S. mutans</i></th><th><i>C. albicans</i></th><th><i>E. coli</i></th><th>No Microbes</th></tr></thead><tbody><tr><td>Toothpaste 1</td><td>2.80</td><td>3.62</td><td>2.62</td><td>0.00</td></tr><tr><td>Toothpaste 2</td><td>1.25</td><td>3.21</td><td>2.00</td><td>0.00</td></tr><tr><td>Toothpaste 3</td><td>0.09</td><td>0.12</td><td>0.23</td><td>0.00</td></tr><tr><td>Toothpaste 4</td><td>2.21</td><td>1.30</td><td>1.36</td><td>0.00</td></tr><tr><td>Distilled Water</td><td>0.08</td><td>0.07</td><td>0.08</td><td>0.00</td></tr></tbody></table> <table><caption>Table 2</caption><thead><tr><th></th><th colspan="4">Inhibition Zone Diameter (mm)</th></tr><tr><th></th><th><i>S. mutans</i></th><th><i>C. albicans</i></th><th><i>E. coli</i></th><th>No Microbes</th></tr></thead><tbody><tr><td>1:2</td><td>2.49</td><td>3.14</td><td>2.31</td><td>0.00</td></tr><tr><td>1:4</td><td>1.41</td><td>1.78</td><td>1.32</td><td>0.00</td></tr><tr><td>1:8</td><td>0.86</td><td>1.20</td><td>0.75</td><td>0.00</td></tr><tr><td>1:16</td><td>0.40</td><td>0.55</td><td>0.38</td><td>0.00</td></tr><tr><td>Distilled Water</td><td>0.07</td><td>0.07</td><td>0.08</td><td>0.00</td></tr></tbody></table><p>Experimental design adapted from Manupati Prasanth, "Antimicrobial Efficacy of Different Toothpastes and Mouthrinses: An In Vitro Study." © 2011 by Dental Research Journal. PMC3177399</p><p>A student treated <i>E. coli</i> with a 1:4 dilution of Toothpaste 4. Based on the data of Toothpaste 1 in tables 1 and 2, which of the following was most likely the average inhibition zone diameter in this experiment?"</p></div>		Inhibition Zone Diameter (mm)					<i>S. mutans</i>	<i>C. albicans</i>	<i>E. coli</i>	No Microbes	Toothpaste 1	2.80	3.62	2.62	0.00	Toothpaste 2	1.25	3.21	2.00	0.00	Toothpaste 3	0.09	0.12	0.23	0.00	Toothpaste 4	2.21	1.30	1.36	0.00	Distilled Water	0.08	0.07	0.08	0.00		Inhibition Zone Diameter (mm)					<i>S. mutans</i>	<i>C. albicans</i>	<i>E. coli</i>	No Microbes	1:2	2.49	3.14	2.31	0.00	1:4	1.41	1.78	1.32	0.00	1:8	0.86	1.20	0.75	0.00	1:16	0.40	0.55	0.38	0.00	Distilled Water	0.07	0.07	0.08	0.00
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A2	Identify Claim: Identify a passage's central claim	"One of the primary arguments that the author is trying to make in the passage is that:"																																																																						

Science Section (Continued)		
Code	Description	Example
A2	Create a Figure: Translate information into a table, graph, or diagram.	"Which of the following figures best depicts the location of the treeline? "
A3	Evaluate claims: Determine whether an idea, hypothesis, prediction, or conclusion is consistent with or supported by the information provided, or vice-versa.	"The <i>reproductive efficiency</i> of a cotton plant is defined as the total number of seeds released by a cotton plant divided by the number of bolls produced. The researchers conclude that S2 plants have a lower average reproductive efficiency than S1 plants. Which of the following could explain this observation?"
A4	Interpolate and Extrapolate: Perform interpolation or extrapolation using data in a table or graph.	 <p>Key</p> <ul style="list-style-type: none"> $1 \times 10^6 \text{ kg}$ (solid line) $5 \times 10^5 \text{ kg}$ (dashed line) $1 \times 10^5 \text{ kg}$ (dotted line) 10 m/s (solid line) 50 m/s (dashed line) 100 m/s (dotted line) <p>Figure 3</p> <p>Note: An object with a mass of $5 \times 10^5 \text{ kg}$ was measured at different velocities, and objects of different masses were measured at 50 m/s.</p> <p>According to Figure 3, the inertial force acting on an object with a mass of $7.5 \times 10^5 \text{ kg}$ traveling at 50 m/s at 90° N latitude would be:</p> <p>A. less than 50 \, N\$.</p> <p>B. between 50 \, N\$ and 100 \, N\$.</p> <p>C. between 100 \, N\$ and 150 \, N\$.</p> <p>D. greater than 150 \, N\$.</p>
A5	Make Predictions: Analyze information provided in order to make a prediction (ex: the results of a new trial).	<p>"Based on Figure 2, if the scientists had measured the UV absorbance of circular DNA in 95 \% DMF at 75° C, the absorbance would most likely have been:</p> <p>A. lower than 0.2\$</p> <p>B. between 0.2\$ and 0.35\$</p> <p>C. between 0.35\$ and 0.5\$</p> <p>D. greater than 0.5\$</p>
K1	Main Goal: Determine whether a passage satisfies a certain purpose stated as the writer's goal, and why it does or does not.	"Suppose the writer's goal had been to write an essay explaining why it is important to begin obedience training early in a dog's life. Would this essay accomplish this goal?"

Science Section (Continued)		
Code	Description	Example
K2	Writing Goals: Determine whether certain changes should be made, or which specific changes should be made to accomplish stated goals.	"At this point in the essay, the writer wants to add information that describes the appearance of the burial vessels. Which choice best accomplishes this goal?"
K3	Focus: Determine the relevance of material in terms of the paragraph or the passage as a whole, and delete irrelevant material.	"The writer is considering deleting the underlined phrase. Should the writer make this deletion?"
K4	Effect of a Phrase: Correctly identify the effect that a certain phrase or sentence has on a sentence, paragraph, or passage, especially in terms of how the meaning would change if the phrase or sentence were removed.	"If the preceding sentence were deleted, the essay would primarily lose:"

Science Section (Continued)		
Code	Description	Example
M1	Compare Passages: Make comparisons between two passages, ranging from simple to complex	"Both Passage A and Passage B are concerned with:"
M2	Combine Passages: Draw logical conclusions using information from two passages	"How would the author of Passage B respond to the author of Passage A's claim that DDT does not affect robins' health?"
S1	Compare and Contrast Figures: Compare or combine data from two or more data presentations (ex: using one table to categorize another).	<p>Figure 1</p>  <p>Figure 2</p>  <p>Figures adapted from S. N. Raman et al. "Elastomeric Polymers for Retrofitting of Reinforced Concrete Structures against the Explosive Effects of Blast." ©2012 by Advances in Materials Science and Engineering. 10.1155/2012/754142</p> <p>According to Figures 1 and 2, how do displacement and strain differ?"</p>
S2	Compare and Contrast Text: Identify which models or experiments are supported or contradicted by given information; note similarities and differences with their methodology and presented information.	"If a black hole were to form near a star, it would accumulate matter from that star. The accumulated matter would then emit single particles. Which scientist, if any, would be likely to claim that these particles would be observable from Earth?"
S3	Evaluate Multiple Claims: Determine which hypothesis, prediction, conclusion, or model supports or contradicts experimental results or information in the text.	"There are two classes of aging hypotheses. The <i>Program Hypothesis</i> states that aging is biologically determined. The <i>Error Hypothesis</i> states that aging is caused by damage accumulated over time. Which scientist(s) would agree with the <i>Error Hypothesis</i> ?"
U1	Basic Calculations: Compare or combine data from a single data presentation.	"Based on Figure 2, the average displacement for bare concrete for the 200 ms during and after the explosion of 2 kg of TNT was closest to which of the following?"
U2	Determine Relationships: Determine how variables depend on one another due to a linear or nonlinear relationship that exist between data.	

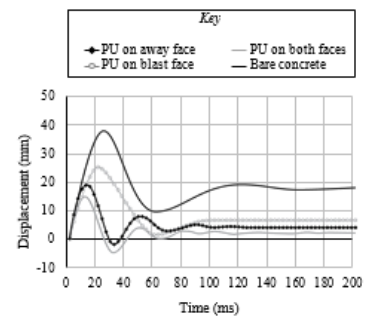


Figure 2

Figures adapted from S. N. Raman et al. "Elastomeric Polymers for Retrofitting of Reinforced Concrete Structures against the Explosive Effects of Blast." ©2012 by Advances in Materials Science and Engineering. 10.1155/2012/754142

According to Figure 2, as latitude increases from the Equator to the North Pole, the rate of Earth's rotation:"

U3

Implications and Assumptions: Identify assumptions and implications of a model.

"When attempting to replicate Studies 1 and 2, one of the students decides to use water, instead of acetone, as her solvent. Will she be able to compare her results to the results of Studies 1 and 2?"

U4

Locate Information in a Figure: Find data or basic features of a graph, table, or diagram.

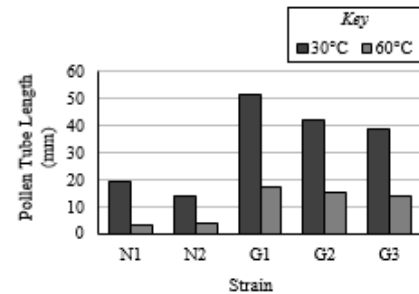


Figure 1

According to Figure 1, which of the following correctly orders the 5 pollen strains from shortest average pollen tube at 30°C\$ to longest average pollen tube at 30°C\$? "

U5

Locate Information in the Text: Find information from the text that describes an experiment or data presentation.

"Which of the following observations would indicate the presence of a black hole, in Scientist A's view?"