



# Indicator of Academic Readiness 8/9

**Manual** 2023–2024

provided by Knowsys Educational Services LLC and

**Baylor TIP**  
TALENT IDENTIFICATION PROGRAM

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The **Indicator of Academic Readiness** (IAR) is an assessment of the knowledge and skills that are predictive of success in post-secondary education. Specifically, the IAR measures knowledge and skills in the following domains: mathematics, science, reading, and writing.

The **Indicator of Academic Readiness 8/9** (IAR 8/9) aligns with the IAR to assess students' progress toward college readiness at the end of middle school/junior high school. Similar to the IAR, the IAR 8/9 measures knowledge and skills in the domains of mathematics, science, reading, and writing.

# IAR 8/9

## About the Test

# What is College Readiness?

02

College readiness refers to a student's level of preparedness and ability to succeed in a post-secondary learning environment. It encompasses a range of academic, social, and practical skills that enable a student to thrive in higher education. Some key components of college readiness include:



## Academic Proficiency

Students should have a strong foundation in core subjects such as mathematics, English, science, and social studies. Academic proficiency includes the foundational knowledge, concepts, and theories of these core subjects. Academic proficiency also includes the application of domain-specific skills that are required for success in these subjects. College ready students consistently demonstrate reading proficiency, written communication, skills in numeracy, algebra, and geometry, and skills associated with scientific thinking and problem solving.

## Study Skills

Most successful post-secondary students report spending significantly more time studying and preparing for class than they did in high school. College-ready students are proficient in time management, note-taking, research, and study techniques. They can adapt to different learning protocols and can handle the increased workload and rigor of college courses.





## Self-Motivation and Responsibility

College readiness involves self-discipline and a willingness to take responsibility for one's education. In fact, self-management is often lauded as one of the leading variables associated with students' grade point averages in post-secondary education. College ready students should be able to set goals, manage their time, stay organized, and proactively address challenges as they arise.

## Critical Thinking and Problem Solving

College students are often required to analyze complex information, think critically, and solve real-world problems. Being college-ready means having the ability to approach these challenges effectively. For instance, college ready students should understand principles of argument, evidence, and logic to support critical thinking. College ready students should know at least one problem solving heuristic that can be broadly applied to most if not all situations.

## Information Literacy

One fundamental difference between typical high school education and post-secondary education is the ability to find information and learn independently. College ready students should be able to access, evaluate, and use information from various sources, including libraries, databases, emergent artificial intelligence tools.

## Communication Skills

Much of what students learn in post-secondary education must be communicated with clarity and precision. For this reason, effective written and verbal communication is crucial for success in college. College-ready students can express themselves clearly in written discourse, oral discourse, discussions and debates, and in multimedia presentation platforms.

# College Readiness

04

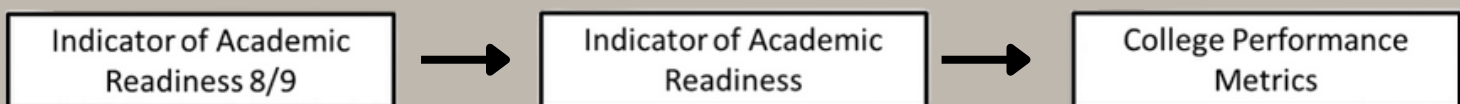


These six facets of college readiness, when combined, are highly predictive of college student outcomes, as demonstrated through the following metrics:

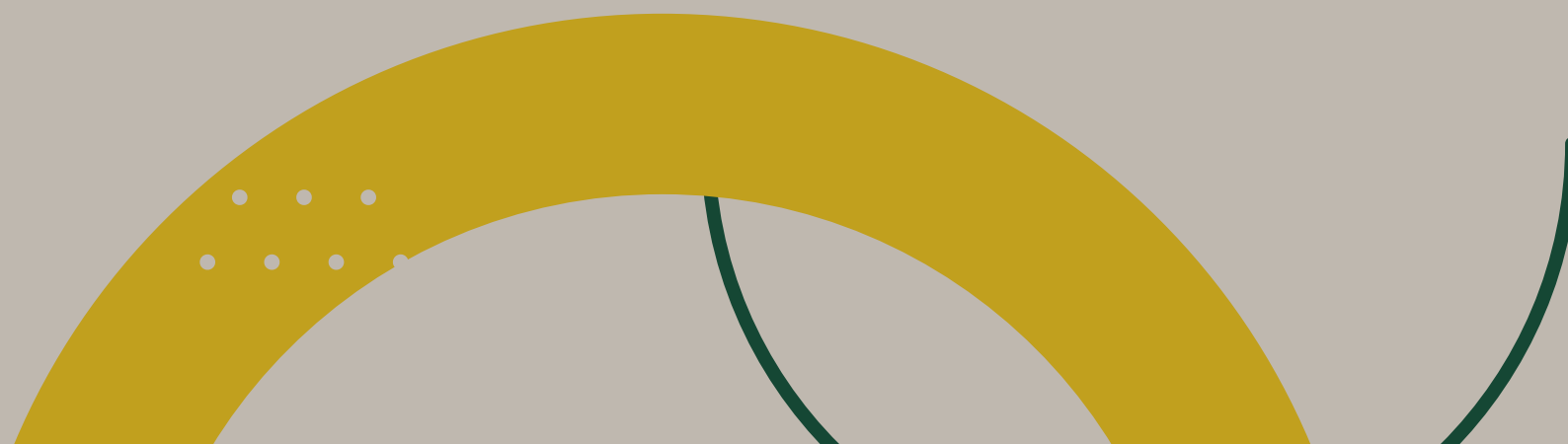
- Exemption from non-credit remediation courses
- First-year grade-point average (GPA)
- Degree completion as well as time to completion
- Overall degree completion GPA.

The IAR and the IAR 8/9 measure students' academic proficiency. The IAR 8/9 measures students' academic proficiency at the end of middle school/beginning of high school, and the IAR measures students' academic proficiency near the end of high school as they are applying for post-secondary admissions.

**Figure 1.**  
**The Longitudinal Predictive Model of College Performance**



*Note. Academic proficiency as measured by the IAR 8/9 taken at the end of middle school or beginning of high school predicts performance on the IAR taken near the end of high school. The IAR measures the academic proficiency of the student and, combined with other college readiness variables, predicts student success in post-secondary education.*





# STANDARDS

The academic standards prescribing college readiness have been defined and widely agreed upon through previous assessment organizations, Common Core curriculum, and individual state standards in the United States. While these standards specify college readiness, not all are measured by the IAR and IAR 8/9.

## **Academic Proficiency Standards of College Readiness**

# Reading

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**College ready students will demonstrate proficiency in the following areas:**



1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.
4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text. Integration of Knowledge and Ideas
7. Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take. Range of Reading and Level of Text Complexity
10. Read and comprehend complex literary and informational texts independently and proficiently.



# Writing

**College ready students will demonstrate proficiency in the following areas:**

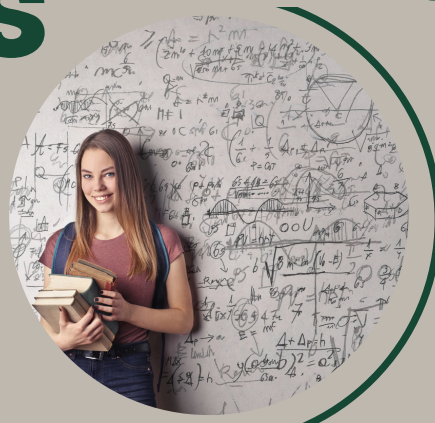
1. Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
2. Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.
3. Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.
4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others. Research to Build and Present Knowledge
7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
8. Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.
9. Draw evidence from literary or informational texts to support analysis, reflection, and research. Range of Writing
10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.



# Mathematics

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**College ready students will demonstrate proficiency in the following areas:**



## Number and Quantity

1. Understand foundational number concepts such as rounding, the ordering of decimals, pattern recognition, primes, and greatest common factors.
2. Write positive powers of 10 by using exponents.
3. Comprehend the concept of length on the number line and find the distance between two points.
4. Understand absolute value in terms of distance.
5. Find the distance in the coordinate plane between two points with the same x-coordinate or y-coordinate.
6. Add two matrices that have whole number entries.

## Algebra

7. Solve routine two-step or three-step arithmetic problems that involve planning or converting common derived units of measure.
8. Perform straightforward word-to-symbol translations.
9. Relate a graph to a situation described in terms of starting value and an additional amount per unit (e.g., growth, rate, cost, etc).
10. Evaluate algebraic expressions by substituting integers for unknown quantities.
11. Add and subtract simple algebraic expressions.
12. Solve routine first-degree equations.





13. Multiply two binomials.

14. Match simple inequalities with their graphs on the number line.

15. Exhibit knowledge of slope.

### **Geometry**

16. Use properties of parallel lines to find the measure of an angle

17. Exhibit knowledge of basic angle properties and special sums of angle measures.

18. Compute the area and perimeter of triangles and rectangles in simple problems.

19. Find the length of the hypotenuse of a right triangle when only very simple computation is involved.

20. Use geometric formulas when all necessary information is given.

21. Locate points in the coordinate plane.

22. Translate points up, down, left, and right in the coordinate plan.

### **Statistics and Probability**

23. Calculate the missing data value given the average of all data values but one.

24. Translate from one representation of data to another (e.g., bar graph to pie chart)

25. Determine probability of a simple event.

26. Describe events as combinations of other events using and, or, and not.

27. Exhibit knowledge of simple counting techniques.



# Science

**College ready students will demonstrate proficiency in the following areas:**

## **Interpretation of Data**

1. Select data from a complex data presentation.
2. Compare or combine data from a simple data presentation.
3. Translate information into a table, graph, or diagram.
4. Perform a simple extrapolation using data in a table or graph.

## **Scientific Investigation**

5. Understand a simple experimental design.
6. Understand the methods used in a complex experiment.
7. Identify a control in an experiment.
8. Identify similarities and differences between experiments.
9. Determine which experiments utilized a given tool, method, or aspect of design.

## **Evaluation of Models, Inferences, and Experimental Results**

10. Determine which simple hypothesis, prediction, or conclusion is, or is not, consistent with a data presentation, model, or piece of information in text.
11. Identify key assumptions in a model.
12. Determine which models imply certain information.
13. Identify similarities and differences between models.



**Testing time:** 120 minutes

**Sections:** 4

**Test items:** 110

**Format:** Online

# Structure of the IAR 8/9

# Math & Science



## Structure

- 2 sections of 30 minutes each
- 30 items per section
- Math content = 74% of items (44 items)
- Science content = 26% of items (16 items)

## Content Tested

- Number and quantity (advanced math)
- Algebra
- Geometry
- Statistics and probability
- Interpretation of data
- Understanding scientific investigation
- Evaluation of models, inferences, and experiments

# Reading & Writing



## Structure

- 2 sections of 30 minutes each
- 25 items per section
- Reading content = 40% of items (20 items)
- Writing content = 50% of items (25 items)
- Vocabulary content = 10% of items (5 items)

## Content Tested

- Reading comprehension (details, inference, main idea)
- Reading analysis (compare/contrast, logic, point of view, purpose, structure, tone)
- Writing grammar (boundaries, modifiers, parallelism, possessives, agreement, verbs)
- Writer's craft (focus, purpose, transitions, use of data, words/expressions)
- Vocabulary (analogies, sentence completions, words in context)





SCORE

Raw scores on the IAR 8/9 are converted to scale scores on a 400-point scale. Students earn a score (0-400) on Math/Science and a score (0-400) on Reading/Writing. A student's total score is the sum of the two scale scores. Thus, the total score range of the IAR 8/9 is 0 to 800.

## Scoring the IAR 8/9



## Your Scores

Your **Reading/Writing** Score  
Range: 0-400



Your **Total** Score  
Range: 0-800



Your **Math/Science** Score  
Range: 0-400



\*Your percentile number represents the percentage of students in the comparison group that you scored higher than.

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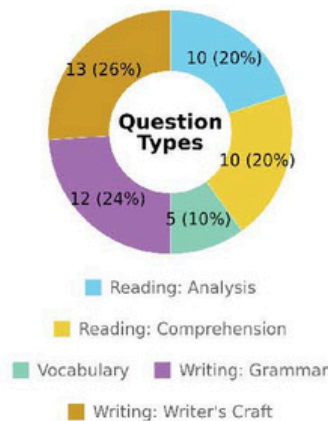
**IAR<sup>4-6</sup>**Indicator  
of Academic  
Readiness

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Date: 10/24/2023

**Your Reading/Writing Performance****310****Total : 50 Questions****Reading: Analysis (10 of 50)**

Compare/Contrast (1/3)  
 Logic (2/3)  
 Purpose (1/1)  
 Structure (2/2)  
 Tone (0/1)

**DIFFICULTY LEVEL**

<b>Easy</b>	100%	(1 of 1)
<b>Medium</b>	56%	(5 of 9)

**Reading: Comprehension (10 of 50)**

Details (3/4)  
 Inference (6/6)

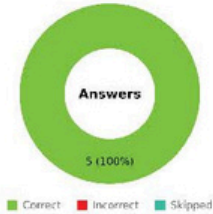
**DIFFICULTY LEVEL**

<b>Easy</b>	100%	(4 of 4)
<b>Medium</b>	75%	(3 of 4)
<b>Hard</b>	100%	(2 of 2)

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## Vocabulary (5 of 50)



Analogies (2/2)

Context (3/3)



## DIFFICULTY LEVEL

Medium	100%	(2 of 2)
Hard	100%	(3 of 3)

## Writing: Grammar (12 of 50)



Boundaries (1/3)

Modifiers (2/2)

Parallelism (1/1)

Possessives (1/1)

Pronouns (2/2)

S/V Agreement (2/2)

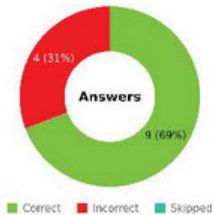
Verbs (1/1)



## DIFFICULTY LEVEL

Easy	100%	(1 of 1)
Medium	100%	(7 of 7)
Hard	50%	(2 of 4)

## Writing: Writer's Craft (13 of 50)



Focus (0/2)

Purpose (0/1)

Transitions (3/4)

Use of Data (3/3)

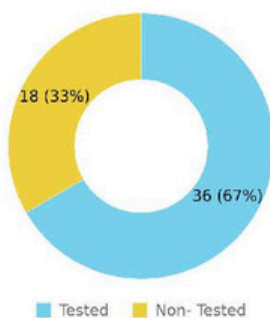
Words & Express. (3/3)



## DIFFICULTY LEVEL

Easy	67%	(2 of 3)
Medium	63%	(5 of 8)
Hard	100%	(2 of 2)

## Vocabulary



**Non-Tested Vocabulary Terms included in this Reading Section (a random sampling):**

diffuse

immersive

impose

waft

evade

imminent

redress

unwieldy

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## Analysis of Your Answers from the Reading/Writing 1 Section

## COLOR KEY :

Q#	#	This indicates you missed/skipped an EASY question. Don't see any yellow cells? Great! You got all the easy questions right!
Your Answer	+	This indicates Your Answer is CORRECT.
	-	This indicates you left this answer BLANK.
	letter	This indicates Your Answer is INCORRECT.
	*	This indicates you double-bubbled this column.

Q#	Your Answer	Correct Answer	Difficulty	Category	Topic
1	+	C	Easy	Writing: Writer's Craft	Words & Express.
2	+	B	Easy	Writing: Grammar	Boundaries
3	+	C	Medium	Reading: Analysis	Structure
4	C	D	Medium	Reading: Comprehension	Details
5	B	D	Medium	Reading: Analysis	Logic
6	+	D	Medium	Vocabulary	Context
7	+	D	Medium	Writing: Grammar	Possessives
8	+	D	Medium	Writing: Writer's Craft	Words & Express.
9	+	D	Medium	Writing: Grammar	S/V Agreement
10	+	B	Medium	Writing: Grammar	Parallelism
11	+	A	Medium	Writing: Grammar	S/V Agreement
12	+	B	Hard	Writing: Writer's Craft	Words & Express.
13	+	D	Easy	Reading: Analysis	Logic
14	+	B	Easy	Reading: Comprehension	Inference
15	+	C	Medium	Reading: Comprehension	Details
16	+	A	Medium	Writing: Writer's Craft	Use of Data
17	+	C	Medium	Writing: Writer's Craft	Use of Data
18	+	B	Medium	Reading: Analysis	Logic
19	+	A	Medium	Reading: Comprehension	Details
20	+	C	Hard	Writing: Grammar	Modifiers
21	+	B	Medium	Writing: Writer's Craft	Transitions
22	+	A	Hard	Vocabulary	Analogies
23	+	B	Medium	Writing: Grammar	Pronouns
24	+	B	Medium	Reading: Comprehension	Inference
25	+	A	Easy	Reading: Comprehension	Inference



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## Analysis of Your Answers from the Reading/Writing 2 Section

Q#	Your Answer	Correct Answer	Difficulty	Category	Topic
1	B	A	Easy	Writing: Writer's Craft	Transitions
2	+	B	Medium	Writing: Grammar	Verbs
3	A	B	Medium	Writing: Writer's Craft	Focus
4	+	B	Medium	Reading: Analysis	Purpose
5	+	D	Easy	Reading: Comprehension	Inference
6	+	B	Medium	Vocabulary	Context
7	B	A	Hard	Writing: Grammar	Boundaries
8	+	B	Hard	Vocabulary	Context
9	+	A	Medium	Writing: Writer's Craft	Transitions
10	C	D	Medium	Writing: Writer's Craft	Purpose
11	+	B	Easy	Reading: Comprehension	Details
12	D	B	Medium	Reading: Analysis	Tone
13	+	D	Medium	Reading: Analysis	Structure
14	+	D	Medium	Writing: Grammar	Pronouns
15	C	B	Medium	Writing: Writer's Craft	Focus
16	+	B	Hard	Writing: Writer's Craft	Transitions
17	+	D	Hard	Vocabulary	Analogies
18	B	D	Medium	Reading: Analysis	Compare/Contrast
19	D	C	Medium	Reading: Analysis	Compare/Contrast
20	+	A	Medium	Reading: Analysis	Compare/Contrast
21	B	D	Hard	Writing: Grammar	Boundaries
22	+	D	Hard	Writing: Grammar	Modifiers
23	+	B	Easy	Writing: Writer's Craft	Use of Data
24	+	C	Hard	Reading: Comprehension	Inference
25	+	B	Hard	Reading: Comprehension	Inference

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**IAR<sup>4-6</sup>** Indicator  
of Academic  
Readiness

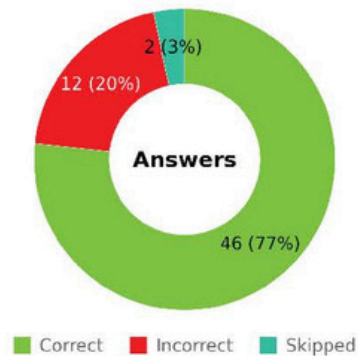
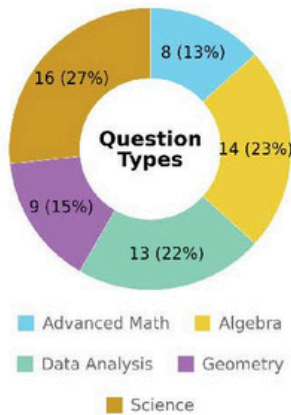
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Date: 10/24/2023

## Your Math/Science Performance

300

Total : 60 Questions



### Advanced Math (8 of 60)



Coord. Geo (3/4)  
Counting Methods (2/2)  
Polynomials (1/1)  
Simult. Equ (1/1)



#### DIFFICULTY LEVEL

**Easy** 100% (2 of 2)  
**Medium** 83% (5 of 6)

### Algebra (14 of 60)



# Properties (1/2)  
Coord. Geo (2/2)  
Equations (7/9)  
Inequalities (0/1)



#### DIFFICULTY LEVEL

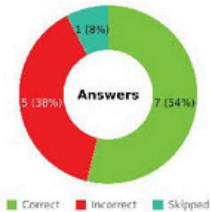
**Easy** 100% (3 of 3)  
**Medium** 57% (4 of 7)  
**Hard** 75% (3 of 4)



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## Data Analysis (13 of 60)



Graphs (3/6)  
 Percents (3/4)  
 Probability (0/1)  
 Ratios & Rates (1/2)



## DIFFICULTY LEVEL

**Easy** 33% (1 of 3)  
**Medium** 57% (4 of 7)  
**Hard** 67% (2 of 3)

## Geometry (9 of 60)



Lines & Angles (3/4)  
 Quadrilaterals (1/1)  
 Solids (2/2)  
 Triangles (2/2)



## DIFFICULTY LEVEL

**Easy** 100% (2 of 2)  
**Medium** 75% (3 of 4)  
**Hard** 100% (3 of 3)

## Science (16 of 60)



Analysis (7/8)  
 Comprehension (7/8)



## DIFFICULTY LEVEL

**Easy** 100% (4 of 4)  
**Medium** 89% (8 of 9)  
**Hard** 67% (2 of 3)

## Analysis of Your Answers from the Math/Science 1 Section

## COLOR KEY :

Q#	#	This indicates you missed/skipped an EASY question. Don't see any yellow cells? Great! You got all the easy questions right!
Your Answer	+	This indicates Your Answer is CORRECT.
	-	This indicates you left this answer BLANK.
	letter	This indicates Your Answer is INCORRECT.
	*	This indicates you double-bubbled this column.

Q#	Your Answer	Correct Answer	Difficulty	Category	Topic
1	+	D	Easy	Advanced Math	Counting Methods
2	+	B	Easy	Algebra	Equations
3	A	D	Easy	Data Analysis	Graphs
4	A	B	Medium	Advanced Math	Coord. Geo
5	+	B	Easy	Geometry	Lines & Angles
6	+	B	Easy	Data Analysis	Ratios & Rates
7	B	D	Medium	Science	Comprehension
8	+	B	Medium	Science	Analysis
9	+	C	Medium	Advanced Math	Counting Methods

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Q#	Your Answer	Correct Answer	Difficulty	Category	Topic
10	+	D	Medium	Algebra	Equations
11	+	B	Hard	Geometry	Solids
12	+	B	Medium	Advanced Math	Coord. Geo
13	+	C	Easy	Science	Comprehension
14	+	A	Medium	Science	Analysis
15	+	C	Medium	Science	Analysis
16	-	B	Medium	Geometry	Lines & Angles
17	+	C	Medium	Advanced Math	Simult. Equ
18	+	D	Medium	Geometry	Quadrilaterals
19	B	D	Medium	Algebra	# Properties
20	+	A	Easy	Science	Comprehension
21	+	A	Medium	Science	Comprehension
22	+	D	Hard	Science	Analysis
23	+	D	Medium	Algebra	Equations
24	A	D	Medium	Algebra	Equations
25	+	C	Medium	Data Analysis	Graphs
26	+	D	Medium	Data Analysis	Percents
27	+	B	Hard	Geometry	Triangles
28	-	D	Hard	Data Analysis	Percents
29	+	D	Hard	Algebra	Coord. Geo
30	+	B	Medium	Geometry	Triangles

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## Analysis of Your Answers from the Math/Science 2 Section

Q#	Your Answer	Correct Answer	Difficulty	Category	Topic
1	+	C	Easy	Algebra	Coord. Geo
2	+	A	Easy	Algebra	# Properties
3	+	A	Medium	Advanced Math	Polynomials
4	A	B	Medium	Data Analysis	Ratios & Rates
5	+	A	Easy	Geometry	Lines & Angles
6	+	D	Medium	Algebra	Equations
7	B	D	Medium	Data Analysis	Probability
8	+	B	Easy	Science	Comprehension
9	+	A	Medium	Science	Analysis
10	+	C	Medium	Science	Analysis
11	+	C	Medium	Data Analysis	Graphs
12	+	B	Easy	Advanced Math	Coord. Geo
13	A	D	Medium	Algebra	Equations
14	+	B	Medium	Advanced Math	Coord. Geo
15	+	B	Medium	Geometry	Lines & Angles
16	B	A	Easy	Data Analysis	Graphs
17	+	D	Hard	Algebra	Equations
18	+	D	Hard	Geometry	Solids
19	+	A	Hard	Algebra	Equations
20	+	B	Medium	Data Analysis	Graphs
21	+	B	Hard	Data Analysis	Percents
22	B	C	Medium	Data Analysis	Graphs
23	+	A	Hard	Data Analysis	Percents
24	+	D	Medium	Algebra	Equations
25	B	A	Hard	Algebra	Inequalities
26	+	C	Easy	Science	Comprehension
27	+	B	Medium	Science	Analysis
28	+	B	Medium	Science	Comprehension
29	+	D	Hard	Science	Comprehension
30	B	D	Hard	Science	Analysis