



Computer-Based  
Sample Test  
Scoring Guide  
Grade 7 Math



*Created September 2021  
Prepared by the Arizona Department of Education*

## About the Sample Test Scoring Guide

The Arizona's Academic Standards Assessment (AASA) Sample Test Scoring Guides provide details about the items, student response types, correct responses, and related scoring considerations for AASA Sample Test items.

Within this guide, each item is presented with the following information:

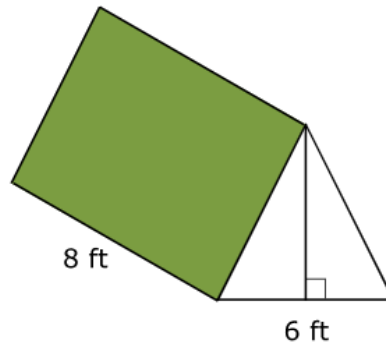
- Item number
- Cluster
- Content Standard
- Depth of Knowledge (DOK)
- Static presentation of the item
- Static presentation of student response field (when appropriate)
- Answer key, rubric or exemplar
- Applicable score point(s) for each item

The items included in this guide are representative of the kinds of items that students can expect to experience when taking the computer-based test for AASA Grade 7 Math.

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
1	7.G.B	7.G.B.6	2

The figure shows the dimensions, in feet (ft), of the floor of a tent.



The volume of the tent is 144 cubic feet. What is the height, in feet, of the tent?

- A. 1.5
- B. 3
- C. 6
- D. 12

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
2	7.SP.A	7.SP.A.2	2

A teacher surveyed 20 students from 4 grades to decide which game to play on the last day of school. The table shows the results.

**Student Survey Results**

Grade	Prefer Baseball	Prefer Soccer
5	14	6
6	13	7
7	8	12
8	5	15

The teacher will choose the same game for all 4 grades. Which conclusions are supported by the survey results?

Move the correct answer to each box. Each answer may be used more than once.

**Supported**

**Not supported**

Conclusion	Supported or Not Supported
Most students want to play soccer.	<b>Not supported</b>
Students in grades 7 and 8 like soccer more than baseball.	<b>Supported</b>
The data will not help the teacher choose a game.	<b>Supported</b>

### Scoring Rubric

Score	Description
1	Student response is, from top to bottom: <ul style="list-style-type: none"> <li>• Not supported</li> <li>• Supported</li> <li>• Supported</li> </ul>
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
3	7.EE.A	7.EE.A.2	2

A clothing store is having a sale. All items are on sale for 35% off the original price. Create an equation in terms of  $p$ , the original price of an item, to show the sale price of the item before any sales tax.

Enter your answer in the space provided.

$p - 0.35p = 0.65p$

Scoring Rubric	
Score	Description
1	<p>Student response is 0.35 or equivalent number in gap 1 and 0.65 or equivalent number in gap 2.</p> <p>Only numeric values allowed in gaps.</p>
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

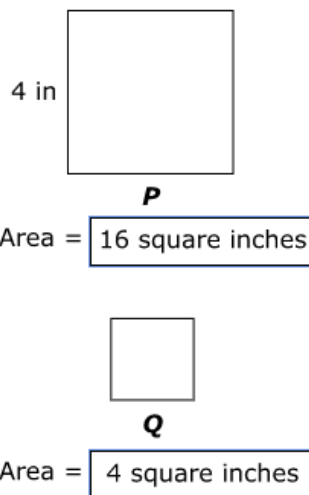
Item Number	Cluster	Content Standard	DOK
4	7.G.A	7.G.A.1	2

Square  $P$  and square  $Q$  are shown. One side of square  $P$  is 4 inches in length, and the area of square  $P$  is 4 times the area of square  $Q$ . What is the area of each square?

Move the correct answer to each box. Not all draggers will be used.

1 square inch

2 square inches



### Scoring Rubric

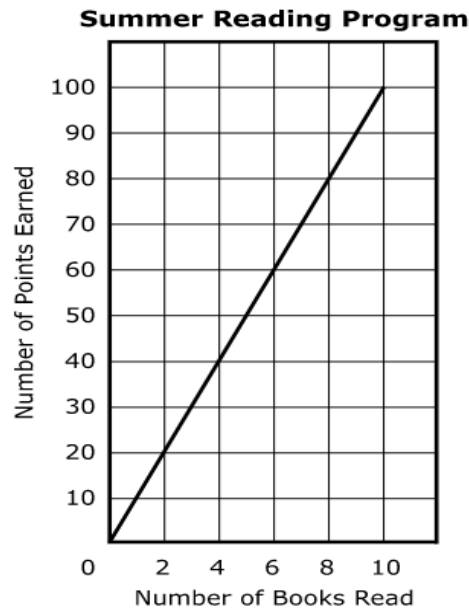
Score	Description
1	The student correctly labels the area of square $P$ as 16 square inches and the area of square $Q$ as 4 square inches.
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
5	7.RP.A	7.RP.A.2	2

The graph shows the number of points earned for every book read in a summer reading program.



Which statements about the graph are true?

Select all the correct answers.

- A. The graph of the equation is  $y = \frac{1}{10}x$ .
- B. The number of points earned for reading 20 books is 200.
- C. The constant of proportionality is 1 point for every 10 books read.
- D. The relationship is proportional because the graph starts at the origin.
- E. The point (1, 10) represents the unit rate of 10 points for every book read.

**(1 Point)** Student selected all of the correct answers.

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
6	7.NS.A	7.NS.A.2	1

Some expressions are shown. All variables are positive, non-zero integers. Determine whether the value of each expression is positive or negative.

Select all the correct answers.

Expression	Positive	Negative
$-x \div -y$	<input checked="" type="radio"/>	<input type="radio"/>
$-x \div -( -y)$	<input type="radio"/>	<input checked="" type="radio"/>
$( -x)( -y)( -z)$	<input type="radio"/>	<input checked="" type="radio"/>
$( -w)(x)( -y)(z)$	<input checked="" type="radio"/>	<input type="radio"/>

### Scoring Rubric

Score	Description
1	The student selects, from top to bottom: <ul style="list-style-type: none"> <li>• Positive</li> <li>• Negative</li> <li>• Negative</li> <li>• Positive</li> </ul>
0	The response is incorrect or irrelevant.

**(1 Point)**



## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
7	7.G.A	7.G.A.3	3

Which slices will always produce a triangular cross section?

Select all the correct answers.

- A. slicing a cone perpendicular to its base
- B. slicing a right square pyramid parallel to its base
- C. slicing a right triangular prism perpendicular to its bases
- D. slicing a right rectangular prism on a diagonal through three of its faces
- E. slicing a right cylinder through both bases but at an angle that is not perpendicular to the base

**(1 Point)** Student selected all of the correct answers.

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
8	7.SP.C	7.SP.C.6	3

A student uses a 6-sided number cube, labeled 1 through 6, to find the experimental probability of rolling a number greater than 4.

She will roll the number cube 12 times. The results of the first 11 rolls are shown.

1, 6, 5, 2, 4, 3, 5, 2, 1, 2, 6

Which number on the 12<sup>th</sup> roll would result in an experimental probability that is equal to the theoretical probability of rolling a number greater than 4?

Select the correct answers.

1	2	3	4	5	6
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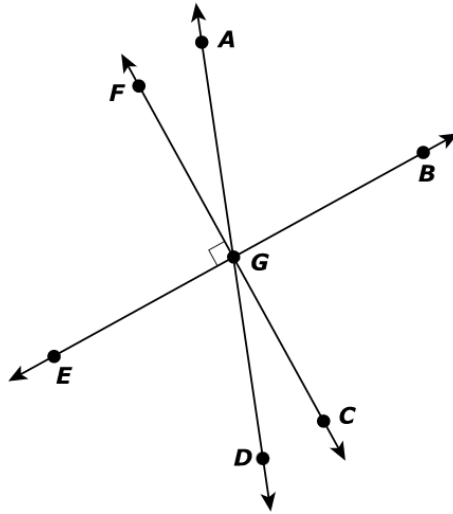
Scoring Rubric	
Score	Description
1	Student response is 1, 2, 3, and 4.
0	The response is incorrect or irrelevant

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
9	7.G.B	7.G.B.5	1

Three lines intersect as shown.



Compare each angle to  $\angle AGB$ .

Select all the correct answers.

	Complementary	Supplementary	Vertical
$\angle BGD$	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
$\angle DGE$	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
$\angle FGA$	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Scoring Rubric	
Score	Description
1	The student chooses: $\angle BGD$ - Supplementary $\angle DGE$ - Vertical $\angle FGA$ - Complementary
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
10	7.NS.A	7.NS.A.1	1

What is the value of the expression  $-3.2 + \left(-1\frac{3}{10}\right)$ ?

Enter your answer in the space provided.

$-4\frac{1}{2}$

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1	2	3
4	5	6
7	8	9
	0	$\frac{\square}{\square}$
.	-	$\frac{\square}{\square}$

Scoring Rubric	
Score	Description
1	Student response is $-4\frac{1}{2}$ or equivalent number.
0	The response is incorrect or irrelevant.

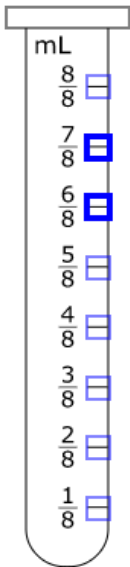
**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
11	7.EE.B	7.EE.B.3	2

A chemistry student is using a dropper to place drops of liquid into a glass container. The container has marks every  $\frac{1}{8}$  milliliter (mL), and each drop contains 0.06 mL of liquid. After the student has placed 14 drops into the container, between which two consecutive marks will the level of the liquid in the container be?

Select the two locations on the container to choose the marks.



Scoring Rubric	
Score	Description
1	Student selects the hashmarks at $\frac{6}{8}$ and $\frac{7}{8}$ .
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
12	7.RP.A	7.RP.A.1	3

Steven is painting walls that are equal in size. He paints  $\frac{1}{6}$  of a wall in  $\frac{3}{10}$  of an hour. Using this information, create an equation for the unit rate,  $r$ , that represents how much of a wall Steven paints in 1 hour.

Enter your answer in the space provided.

$$r = \frac{1}{6} \div \frac{3}{10}$$

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1	2	3	$r$							
4	5	6	+	-	·	÷				
7	8	9	<	≤	=	≥	>			
	0	$\frac{\square}{\square}$	$\square^\square$	( )		$\sqrt{\square}$	$\sqrt[\square]{\square}$	$\pi$		
.	-	$\frac{\square}{\square}$								

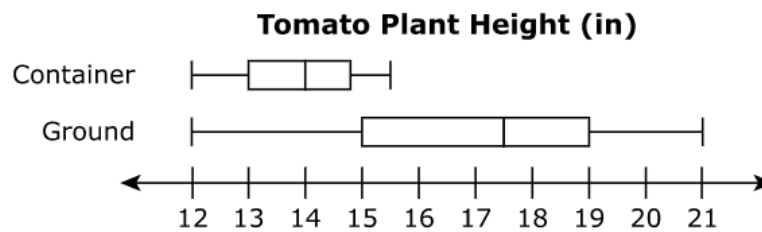
Scoring Rubric	
Score	Description
1	Student response is $r = (1/6) \div (3/10)$ or equivalent equation.
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
13	7.SP.B	7.SP.B.4	2

Joseph planted some tomato seeds in containers and some tomato seeds in the ground. He watered them equally. After 2 months, he measured the height, in inches (in), of each plant. The box plots show the results.



Based on the box plots, which statements about the tomato plants are true?

Select all the correct answers.

- A. More plants were planted in the ground than were planted in containers.
- B. On average, the plants in the ground grew taller than the plants in the containers.
- C. The plants in the ground grew more tomatoes than the plants in the containers.
- D. The heights of the plants in the containers varied less than the heights of the plants in the ground.
- E. The heights of all the plants in the ground were greater than the heights of all the plants in the containers.

**(1 Point)** Student selected all of the correct answers.

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
14	7.EE.B	7.EE.B.4	2

Sofia sets up a lemonade stand. She spends \$8.00 on supplies and charges \$0.50 per cup of lemonade she sells. Which inequality represents the number of cups of lemonade,  $c$ , that Sofia needs to sell in order to earn more than \$25.00 profit?

Move the correct answer to each box. Not all answers will be used.

0.5c  8  25

Scoring Rubric	
Score	Description
1	The student correctly chooses a minus sign ( - ) for the first gap and a greater than sign ( > ) for the second gap.
0	The response is incorrect or irrelevant.

**(1 Point)**



## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
15	7.SP.C	7.SP.C.5	1

Which probabilities best represent events that would **not** be considered either likely or unlikely?

Select all the correct answers.

- A. 0.23
- B. 0.93
- C. 0.47
- D. 0.87
- E. 0.17
- F. 0.53

**(1 Point)** Student selected all of the correct answers.

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
16	7.G.A	7.G.A.2	2

The lengths of two sides of a triangle are 5.2 inches and 3.1 inches. Which lengths, in inches, could be the length of the third side?

Select all the correct answers.

2.1	3.1	4.6	5.2	8.3	9.7
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Scoring Rubric	
Score	Description
1	The student selects the hotspots for 3.1, 4.6, and 5.2.
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
17	7.EE.A	7.EE.A.1	1

Which expression is equivalent to  $\frac{1}{5}(-6p + 17) - 2.9$ ?

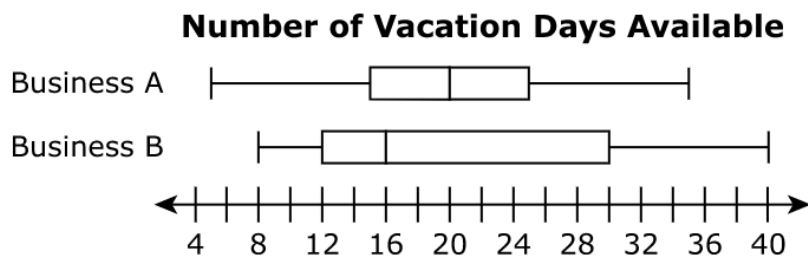
- A.  $-\frac{6}{5}p - 14.1$
- B.  $-\frac{6}{5}p + 0.5$
- C.  $-2.9 + \frac{11}{5}p$
- D.  $-2.9 + \frac{23}{5}p$

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
18	7.SP.B	7.SP.B.3	2

The two box plots shown represent the number of vacation days available for a random sample of 100 employees in two different businesses.



Complete the sentences by selecting the correct answers from the drop-down menus.

The median for Business B is about  the median for Business A.

The range of Business B is  days greater than the range of Business A.

**(1 Point)** Student selected both correct answers from the dropdowns.

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
19	7.G.B	7.G.B.4	2

A park has a hiking trail in the shape of a circle. The trail has a circumference of 5 miles. How many square miles, to the nearest whole number, is the area inside the trail?

Enter your answer in the space provided.

2

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1	2	3
4	5	6
7	8	9
	0	$\frac{\square}{\square}$
.	-	$\frac{\square}{\square}$

Scoring Rubric	
Score	Description
1	Student response is 2 or equivalent number.
0	The response is incorrect or irrelevant.

**(1 Point)**

# Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
20	7.SP.C	7.SP.C.7	3

Maddox randomly selected a marble from a bag, recorded the color, and then placed it back in the bag. He did this 40 times. His results are shown in the table.

Marble Color	Number of Times Selected
Red	9
Blue	8
Green	21
Yellow	2
Purple	0

Based on the observed frequencies, which table is most likely to represent the bag of marbles that Maddox used?

A.

Marble Color	Number in Bag
Red	4
Blue	4
Green	4
Yellow	4
Purple	4

B.

Marble Color	Number in Bag
Red	4
Blue	2
Green	12
Yellow	0
Purple	2

C.

Marble Color	Number in Bag
Red	4
Blue	3
Green	11
Yellow	2
Purple	0

D.

Marble Color	Number in Bag
Red	5
Blue	3
Green	9
Yellow	2
Purple	1

**(1 Point)**

# Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
21	7.RP.A	7.RP.A.2	2

Two gyms offer different membership plans. The tables show the total costs of the plans at Gym A and Gym B for different numbers of months.

Number of Months	Total Cost
2	\$60
4	\$120
6	\$180
8	\$240

Number of Months	Total Cost
2	\$80
4	\$120
6	\$160
8	\$200

What amount represents the constant of proportionality for the plan that shows a proportional relationship?

Enter your answer in the space provided.

30

← → ↶ ↷ ✕

1	2	3
4	5	6
7	8	9
	0	$\frac{\square}{\square}$
.	-	$\frac{\square}{\square}$

Scoring Rubric	
Score	Description
1	Student response is 30 or equivalent number.
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
22	7.EE.B	7.EE.B.3	2

Susan has two dogs named Murphy and Fido. She feeds each of them the same type of dog food.

- Murphy eats  $\frac{2}{3}$  of a can of dog food each day.
- Fido eats  $\frac{1}{2}$  of a can of dog food each day.
- Each can of dog food costs \$1.75.
- The pet store is offering a sale that allows customers to buy 1 can of food and get 1 free.

Susan wants to buy a 60-day supply of dog food during the sale. To the nearest cent, what will be the cost of Susan's dog food purchase before tax?

Enter your answer in the space provided.

61.25

← → ↶ ↷ ✕

1	2	3	
4	5	6	
7	8	9	
	0	$\frac{\square}{\square}$	
.	-	$\frac{\square}{\square}$	

Scoring Rubric	
Score	Description
1	Student response is 61.25 or equivalent number. $60 \times \left( \frac{2}{3} + \frac{1}{2} \right) = 70$ $70 \div 2 = 35$ $35 \times 1.75 = 61.25$
0	The response is incorrect or irrelevant.

**(1 Point)**



## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
23	7.NS.A	7.NS.A.3	1

An expression is shown.

$$\frac{3}{8} \div \frac{4}{9}$$

What is the value of the expression?

- A.  $\frac{3}{2}$
- B.  $\frac{2}{3}$
- C.  $\frac{32}{27}$
- D.  $\frac{27}{32}$

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
24	7.SP.A	7.SP.A.1	2

A town council creates a survey to collect data on preferences for the location of a new park. What would be a valid sampling method to collect the survey data?

Move the correct answer to each box. Each answer may be used more than once.

Valid

Not valid

Sampling Method	Valid or Not Valid
Survey a random selection of people who attend town council meetings.	Not valid
Survey a random selection of people who live in town.	Valid
Survey a random selection of people who stop at a gas station near town.	Not valid

### Scoring Rubric

Score	Description
1	Student response is, from top to bottom: <ul style="list-style-type: none"> <li>• Not valid</li> <li>• Valid</li> <li>• Not valid</li> </ul>
0	The response is incorrect or irrelevant.

**(1 Point)**

## Grade 7 Math Sample Test

Item Number	Cluster	Content Standard	DOK
25	7.RP.A	7.RP.A.3	2

An organization had a balance of \$30,000 last year. This year, the organization's balance has increased by 15%. The organization spends  $\frac{2}{5}$  of this balance on new programs. How much money does the organization have remaining?

- A. \$12,600
- B. \$13,800
- C. \$18,900
- D. \$20,700

**(1 Point)**