



THIRD SPACE
LEARNING

6th Grade Ohio State Practice Math Test

Ohio Practice Test Grade 6

Grade 6

Questions

Name:

Class:

Date:

Score:

Standard: 6.EE.2.c

DOK 1

- 1 What is the value of the expression $\frac{2(8 - 4) + 4^2}{6}$?

Answer:_____

Standard: 6.NS.2

DOK 1

- 2 Find the quotient of $7850 \div 25$.

Answer:_____

Standard: 6.NS.6.c

DOK 2

- 3 Select the number that is furthest from -3 on the number line.

- ☐ -9
- ☐ 8
- ☐ 9
- ☐ 0

Standard: 6.EE.1

DOK 2

- 4 Select two expressions that are equivalent to 4.2^3

- ☐ 4.2×3
- ☐ $4.2 \times 4.2 \times 4.2$
- ☐ $4.2 \times 2(4.2)$
- ☐ $4.2^2 \times 4.2$
- ☐ $4.2 \times 2 \times 4.2^2$

Standard: 6.RP.3.a

DOK 2

- 5 Complete the ratio table.

7	21		
5		30	40

Standard: 6.RP.2

DOK 2

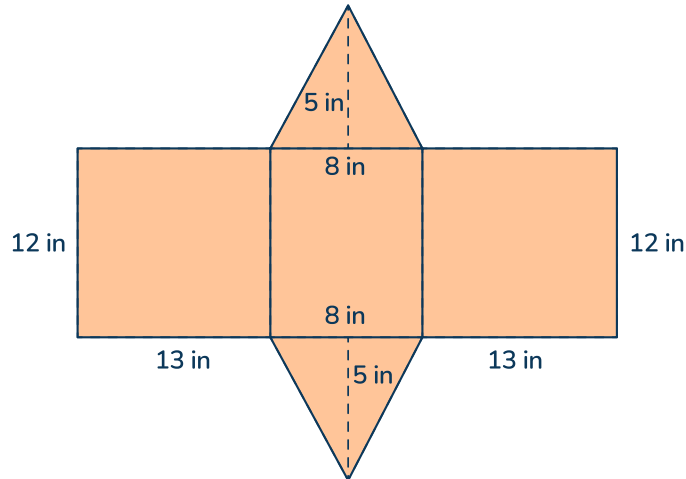
- 6 Jay runs 16.5 miles in 2.2 hours. Select his speed in miles per hour.

- ☐ 7.5 miles per hour
- ☐ 0.29 mile per hour
- ☐ 0.3 mile per hour
- ☐ 7 miles per hour

Standard: 6.G.4

DOK 2

- 7 The net of the triangular prism is below. Find the surface area.



 Answer

Standard: 6.RP.3

DOK 2

- 8 The ratio of boys to girls in a 6th grade math class is 2:5. If there are 8 boys, how many girls are there?

Answer:_____

Standard: 6.EE.2.c

DOK 2

- 9 Find the value of the expression $\frac{1}{4}a + c^3$ when $a = 20$ and $c = 2$

 Answer

Standard: 6.RP.3.b

DOK 2

- 10 Select three statements that represent a unit rate.

- ☐ Jill runs at a rate of 5 miles per hour.
- ☐ It takes Nick 4 hours to drive 256 miles
- ☐ Dev burns 4 calories per minute during his workout.
- ☐ Darrin scores 30 points over 3 games.
- ☐ A recipe calls for 3 cups of sugar per 2 sticks of butter.
- ☐ Gas costs \$3.78 per gallon.

Standard: 6.EE.3

DOK 2

- 11** Select two expressions that are equivalent to $9a - 18b$.

☐ $\frac{1}{2}(18a - 36b)$

☐ $4(5a - 14b)$

☐ $\frac{1}{9}(9a - 18b)$

☐ $9(a - 2b)$

☐ $3(3a - 18b)$

Standard: 6.EE.7

DOK 2

- 12** The total cost for clearing a plot of land of trees can be modeled by the equation below, where x represents the cost to cut down a tree.

$$25x = 16500$$

What is the cost to cut down one tree?

Answer:_____

Standard: 6.RP.3.b

DOK 3

13 Devon goes to the store and buys the following:

- 4 pounds of almonds for \$13.12
- 3 pounds of cashews for \$8.34
- 5 pounds of chocolate covered pretzels for \$21.40
- 2 pounds of liquorice for \$5.60

Which food item is the cheapest per pound?

 Answer

Standard: 6.RP.3.c

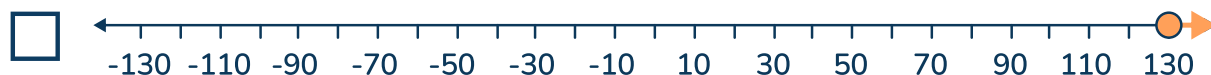
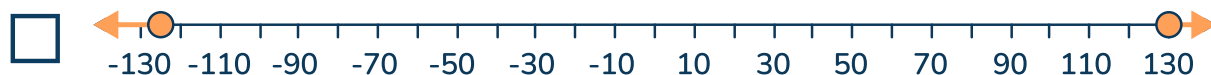
DOK 3

14 120 students either play field hockey or tennis. If 40% of the students play tennis, how many students play field hockey?

 Answer

Standard: 6.NS.5**DOK 2**

- 15 The coldest temperature ever recorded on earth was about -128°F and the hottest temperature ever recorded on earth was about 130°F . Which number line represents the range of temperatures recorded on earth?

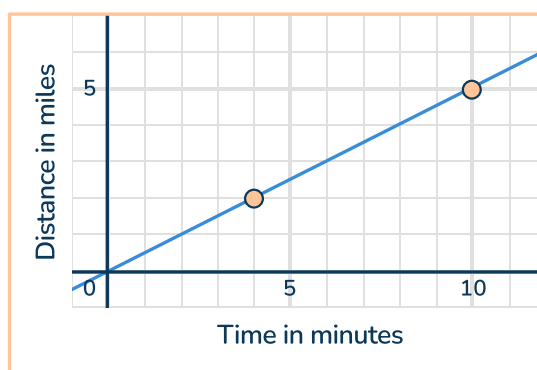
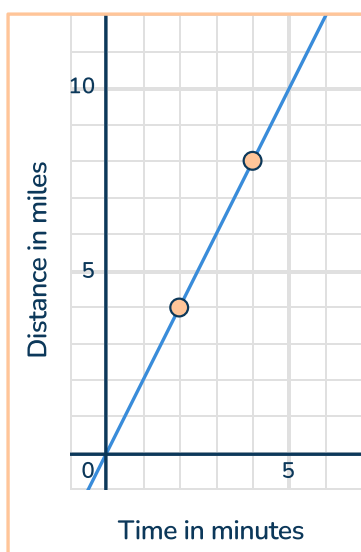
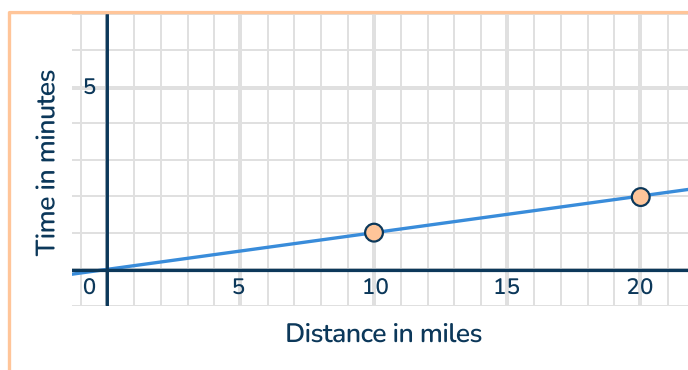
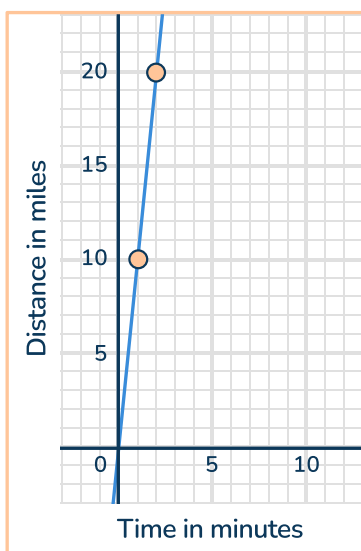


Standard: 6.EE.9**DOK 2**

- 16 Gigi speed walks at a constant rate. The equation represents the relationship between the time, t , she walks in minutes and the distance, d , she walks in miles.

$$d = \frac{1}{10}t$$

Which graph represents the relationship between the amount of time Gigi walks and the distance she walks?



Standard: 6.G.2

DOK 3

- 17** Katie is trying to figure out which box contains more space.
The first box has a base area of 32 in^2 . The height of the box is $12\frac{1}{3} \text{ in}$.
The second box has a base area of 36 in^2 and a height of $9\frac{1}{2} \text{ in}$.
Which box has the greater interior space?

 Answer

Standard: 6.RP.3

DOK 3

- 18** There are yellow marbles and green marbles in a bag. The ratio of yellow marbles to green marbles is 2:7. There are 25 more green marbles than yellow marbles. How many yellow marbles are in the bag?

 Answer

Standard: 6.RP.3.c

DOK 3

- 19 Julie keeps a coin collection. She keeps 8 of her oldest coins in a separate box. These 8 coins represent 10% of her collection. What is the total number of coins in Julie’s collection?


 Answer

Standard: 6.NS.4

DOK 2

- 20 For each set of numbers check the box that represents the number that is the greatest common factor.

	2	4	8	12
32 and 48				
18 and 20				
36 and 48				

 Answer

Standard: 6.EE.8**DOK 2**

- 21** Sydney is going shopping to buy a new outfit for her vacation. She wants to spend less than \$75 on the outfit. The inequality below represents the amount of money, m , Sydney has left after purchasing a pair of jeans for \$42.50.

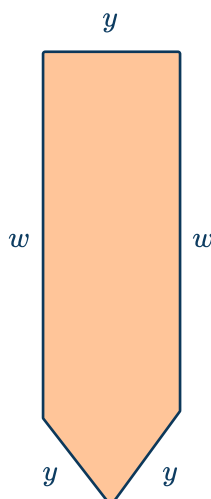
$$75 > 42.5 + m$$

Sydney wants to buy something else to go with her new jeans. Select all the things she can buy with the money she has left.

- ☐ A sweater for \$32.50
 - ☐ Two t-shirts for \$15 each
 - ☐ A blouse for \$32
 - ☐ A blazer for \$33
 - ☐ A long sleeve t-shirt for \$32.25
-

Standard: 6.EE.6**DOK 2**

- 22** Write an expression that represents the perimeter of the irregular figure below.



Answer: _____

Standard: 6.G.A.2

DOK 2

- 23 Find the volume of a cube with side length $2\frac{1}{2}$ cm.

Volume = _____

Standard: 6.EE.A.4

DOK 2

- 24 Select the expressions that are equivalent to $6(7f - 9)$.

☐ $13f - 15$

☐ $13f + 15$

☐ $42f - 54$

☐ $43f + 54$

☐ $-54 + 42f$

☐ $-15 + 3f$

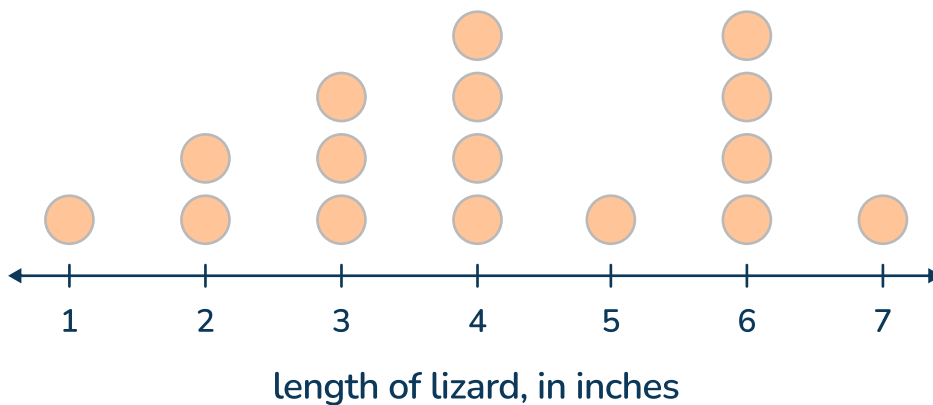
Standard: 6.EE.3**DOK 2**

- 25 Select a box in each row that matches the numerical expression on the left.

	$42 + 30$	$24 + 32$	$16 + 18$	$24 + 30$
$4(6 + 8)$				
$2(8 + 9)$				
$6(7 + 5)$				

Standard: 6.SP.4, 6.SP.5.c**DOK 3**

- 26 The dot below shows the length of 16 different lizards in a pet store. Calculate the mean, median, mode and range of the data set.



Answer

Mean:

Median:

Mode:

Range:

Standard: 6.RP.3.a
DOK 3

27 The tables below show the amount of time it took Randy and Claudia to pack boxes.


A. Complete the tables.

Claudia	
Time (minutes)	Number of boxes
5	4
	8
15	

Rand	
Time (minutes)	Number of boxes
7	6
14	
21	

B. If they both maintain this rate, how many boxes will they pack in 35 minutes?


C. Who has the faster rate?

 Answer

Standard: 6.EE.7

DOK 3

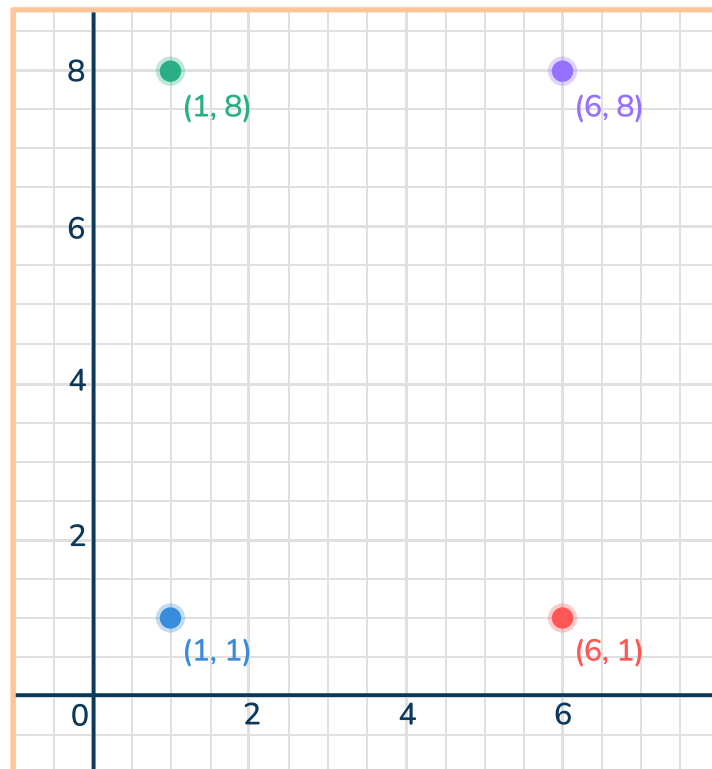
- 28** Jeanie has 16 marbles. This is 4 times as many marbles as Donny has. Write and solve an equation to determine the amount of marbles, m , that Donny has.

 Answer

Standard: 6.NS.8

DOK 3

- 29 The graph below represents the coordinates where a farmer puts stakes in the ground to build a fence. What would the perimeter of the fence be?



Rationales

Item	KEY	Rationale
1	4	$\frac{2(8 - 4) + 4^2}{6} = \frac{2(4) + 4^2}{6} = \frac{8 + 26}{6} = \frac{24}{6} = 4$

Item	KEY	Rationale
2	314	$7850 \div 25 = 314$

Item	KEY	Rationale
3	9	You can count the spaces on the number line or find the absolute value of the difference in values. $ -3 - 9 = 12$

Item	KEY	Rationale
4	$4.2 \times 4.2 \times 4.2$ $4.2^2 \times 4.2$	$4.2^3 = 4.2 \times 4.2 \times 4.2 = 74.088$ $4.2^3 = 4.2^2 \times 4.2 = 74.088$

Item	KEY	Rationale
5	7 21 42 56 5 15 30 40	$7 \rightarrow 21, 7 \times 6 = 42, 7 \times 8 = 56$ $5 \rightarrow 5 \times 3 = 15, 30, 40$

Item	KEY	Rationale
6	7.5mph	$\frac{16.5}{2.2} = 7.5$ miles per hour

Ohio State Practice Math Test | Grade 6 | Rationales

Item	KEY	Rationale
7	448 inches ²	<p>There are two triangular faces that are equal.</p> $2 \times \left(\frac{1}{2} \times 8 \times 5 \right) = 2(20) = 40$ <p>There are two rectangular faces that are equal.</p> $2 \times (12 \times 13) = 2(156) = 312$ <p>There is one rectangular face that is 8×12.</p> $8 \times 12 = 96$ <p>Add up all the areas.</p> $40 + 312 + 96 = 448 \text{ inches}^2$

Item	KEY	Rationale
8	20	$\frac{2}{5} = \frac{8}{\text{girls}}$ $40 = 2 \times \text{girls}$ $20 = \text{girls}$

Item	KEY	Rationale
9	13	$\frac{1}{4}a + c^3 = \frac{1}{4}(20) + (2)^3 = 5 + 8 = 13$

Item	KEY	Rationale
10	<p>Jill runs at a rate of 5 miles per hour.</p> <p>Dev burns 4 calories per minute during his workout.</p> <p>Gas costs \$3.78 per gallon</p>	<p>A unit rate is the amount of something in each unit or per unit.</p> <p>Jill runs at a rate of 5 miles per hour. The unit rate is defined here to be 5 miles per 1 hour.</p> <p>Dev burns 4 calories per minute during his workout. The unit rate is defined here to be 4 calories per 1 minute.</p> <p>Gas costs \$3.78 per gallon. The unit rate is defined here to be \$3.78 per 1 gallon.</p>


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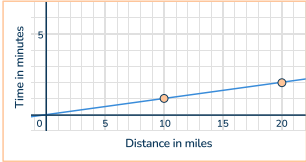
Item	KEY	Rationale
11	$\frac{1}{2}(18a - 36b)$ $9(a - 2b)$	$9a - 18b$ can be rewritten using the distributive property. $\frac{1}{2}(18a - 36b)$ is equivalent to $9a - 18b$. $9(a - 2b)$ is equivalent to $9a - 18b$.

Item	KEY	Rationale
12	\$660	To find x , divide both sides of the equation by 25. $16500 \div 25 = 660$

Item	KEY	Rationale
13	The cheapest is cashews at \$2.78 per pound	$\$13.12 \div 4 = \3.28 almonds $\$8.34 \div 3 = \2.78 cashews $\$21.40 \div 5 = \4.28 chocolate covered pretzels $\$5.60 \div 2 = \2.80 liquorice

Item	KEY	Rationale
14	72 students play field hockey	$\frac{x}{120} = \frac{40}{100}$ $100x = 4800$ $x = 48$ play tennis. $120 - 48 = 72$ 72 play field hockey.

Item	KEY	Rationale
15		The number line graph is showing all the numbers in between -128 and 130, including -128 and 130.

Item	KEY	Rationale
16		The linear graph represents the correct relationship between distance and time. The x axis represents distance in miles and the y axis represents time in minutes from point to point, for every 10 minutes, Gigi walks 1 mile.

Ohio State Practice Math Test | Grade 6 | Rationales

Item	KEY	Rationale
17	Box 1	<p>Volume = base area \times height</p> <p>Box 1 has a volume of $32 \times 12 \frac{1}{3} = 394 \frac{2}{3} \text{ in}^3$</p> <p>Box 2 has a volume of $36 \times 9 \frac{1}{2} = 342 \text{ in}^3$</p> <p>Box 1 has a greater interior space since the volume is greater.</p>

Item	KEY	Rationale
18	10	<p>$2:7 = 4:14 = 6:21 = 8:28 = 10:35$</p> <p>The difference between 2:7 is 5</p> <p>The difference between 4:14 is 10</p> <p>The difference between 8:28 is 20</p> <p>The difference between 10:35 is 25</p> <p>So, there are 10 yellow marbles.</p>

Item	KEY	Rationale
19	80 coins	<p>10% of 80 is 8</p> $\frac{10}{100} = \frac{8}{80}$

Item	KEY	Rationale
20	First row: 8 Second row: 2 Third row: 12	<p>The factors of 32: 1, 2, 4, 8, 16, 32</p> <p>The factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48</p> <p>GCF: 8</p> <p>The factors of 18: 1, 2, 3, 6, 9, 18</p> <p>The factors of 20: 1, 2, 4, 5, 10, 20</p> <p>GCF: 2</p> <p>The factors of 36: 1, 2, 3, 4, 9, 12, 18, 36</p> <p>The factors of 48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48</p> <p>GCF: 12</p>

Ohio State Practice Math Test | Grade 6 | Rationales

Item	KEY	Rationale
21	Two t-shirts for \$15 each A blouse for \$32 A long sleeve t-shirt for \$32.25	The item(s) that Sydney buys has to sum with \$42.50 to be less than \$75. The t-shirts are \$15 each so, $42.50 + 2(15) = 72.50$ $72.50 < 75$ The blouse for \$32, $32 + 42.50 = 74.50$ $74.50 < 75$ The long sleeve t-shirt for \$32.25, $42.50 + 32.25 = 74.75$ $74.75 < 75$

Item	KEY	Rationale
22	$2w + 3y$	$w + w + y + y + y = 2w + 3y$

Item	KEY	Rationale
23	$15\frac{5}{8} \text{ cm}^3$	$V = l \times w \times h$ $V = 2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$ $V = \frac{5}{2} \times \frac{5}{2} \times \frac{5}{2}$ $V = \frac{125}{8} = 15\frac{5}{8} \text{ cm}^3$

Item	KEY	Rationale
24	$42f - 54$ and $-54 + 42f$	$6(7f - 9) = 42f - 54$ which also equals $-54 + 42f$

Item	KEY	Rationale
25	First row: checked off $24 + 32$ Second row: checked off $16 + 18$ Third row: $42 + 30$	Using the distributive property: $4(6 + 8) = 24 + 32$ $2(8 + 9) = 16 + 18$ $6(7 + 5) = 42 + 30$

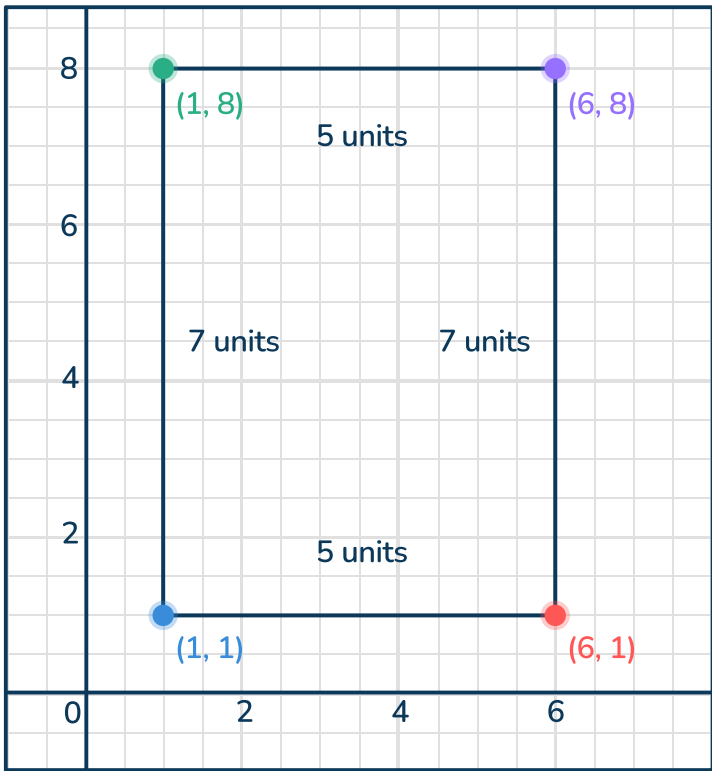
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Item	KEY	Rationale
26	<p>Mean: 4.125 inches</p> <p>Median: 4</p> <p>Mode: 4 and 6</p> <p>Range: 6</p>	<p>To find the mean add up the lengths and divide by the total amount of lizards:</p> $1+2+2+3+3+3+4+4+4+4+5+6+6+6+6+7 = 66$ $66 \div 16 = 4.125$ <p>Median is the data point in the middle. In this case there are two data points in the middle so they will need to be averaged.</p> $4 + 4 = 8$ $8 \div 2 = 4$ <p>Mode is the data point that occurs the most. In this case it is 4 and 6.</p> <p>Range is the difference between the largest data point and the smallest.</p> $7 - 1 = 6$

Item	KEY	Rationale
27 A	<p>Claudia's table:</p> $5 \rightarrow 4$ $10 \rightarrow 8$ $15 \rightarrow 12$ <p>Randy's table:</p> $7 \rightarrow 6$ $14 \rightarrow 12$ $21 \rightarrow 18$	<p>Claudia's table:</p> $5 \rightarrow 4$ $5 \times 2 = 10 \rightarrow 8$ $15 \rightarrow 3 \times 4 = 12$ <p>Randy's table:</p> $7 \rightarrow 6$ $14 \rightarrow 2 \times 6 = 12$ $21 \rightarrow 6 \times 3 = 18$
27B	<p>Claudia in 35 minutes packs 28 boxes.</p> <p>Randy in 35 minutes packs 30 boxes</p>	<p>Claudia = 35 (5 x 7) minutes packs 28 (4 x 7) boxes.</p> <p>Randy = 35 (7 x 5) minutes packs 30 (6 x 5) boxes.</p>
27C	Randy packs faster	Randy packs at the faster rate.

Ohio State Practice Math Test | Grade 6 | Rationales

Item	KEY	Rationale
28	$4m = 16$ $m = 4$ Donny has 4 marbles	$4m = 16$ $\frac{4m}{4} = \frac{16}{4}$ $m = 4$ Donny has 4 marbles.

Item	KEY	Rationale
29	Perimeter = 24 units	 <p>Perimeter = $7 + 7 + 5 + 5$ Perimeter = 24 units</p>




Breakdown of Assessment				
Ratios & Proportional Relationships	Expressions, Equations, and Inequalities	The Number System	Geometry	Statistics and Probability
30%	36%	17%	10%	7%

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