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 ÷ 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

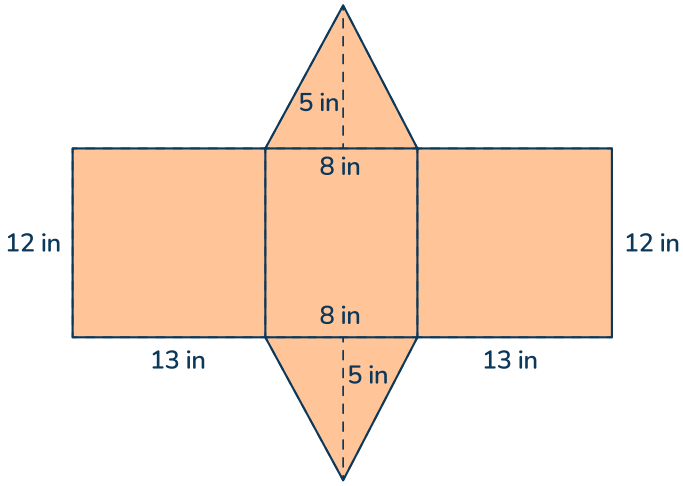
Standard: 6.RP.2
DOK 2

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?

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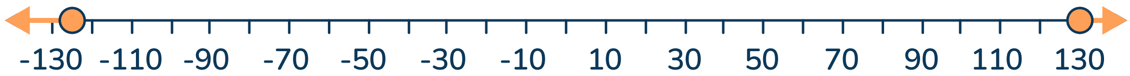
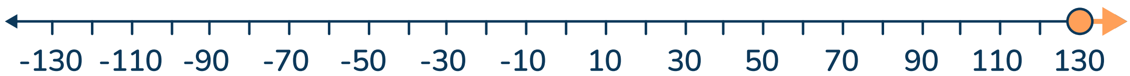
☐ 

☐ 

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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?

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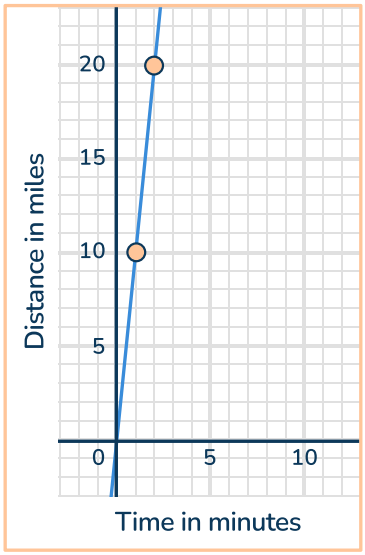

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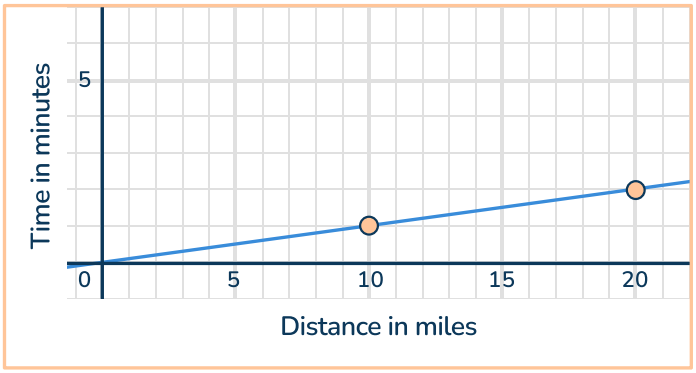

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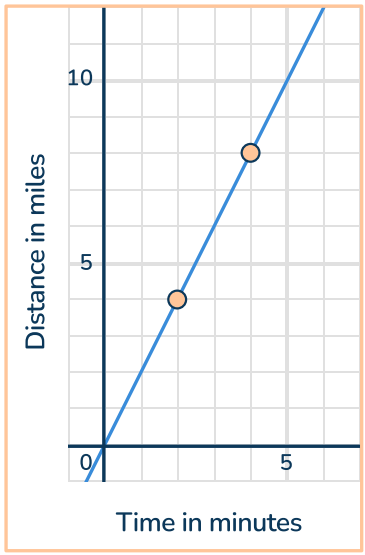

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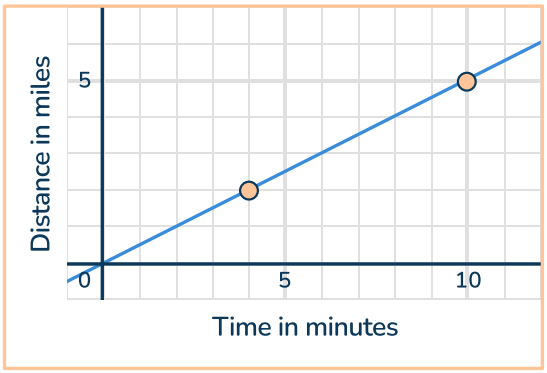


Standard: 6.G.2
DOK 3

17 Katie is trying to figure out which box contains more space.
The first box has a base area of 32 in². The height of the box is $12\frac{1}{3}$ in.
The second box has a base area of 36 in² and a height of $9\frac{1}{2}$ 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.

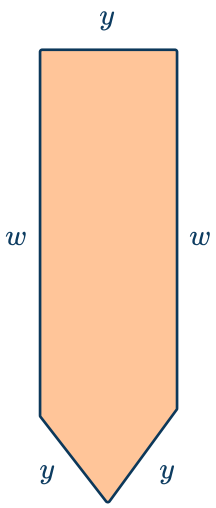
$$75 > 42.5 + m$$

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 $6(7f - 9)$.

- ☐ $13f - 15$
- ☐ $13f + 15$
- ☐ $42f - 54$
- ☐ $43f + 54$
- ☐ $-54 + 42f$
- ☐ $-15 + 3f$

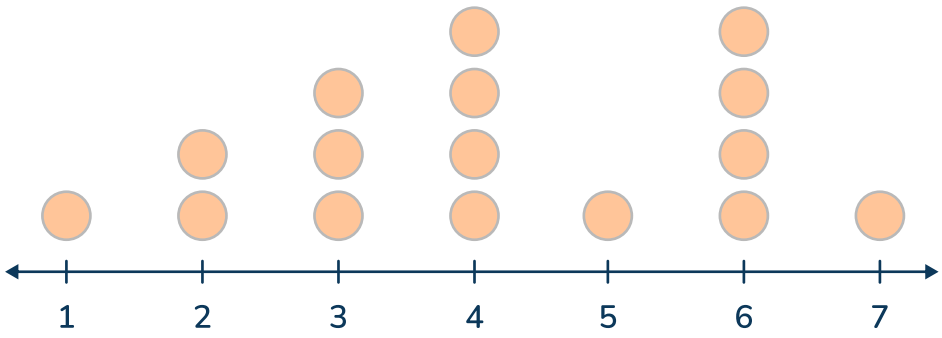
Standard: 6.EE.3
DOK 2

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.



length of lizard, in inches

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

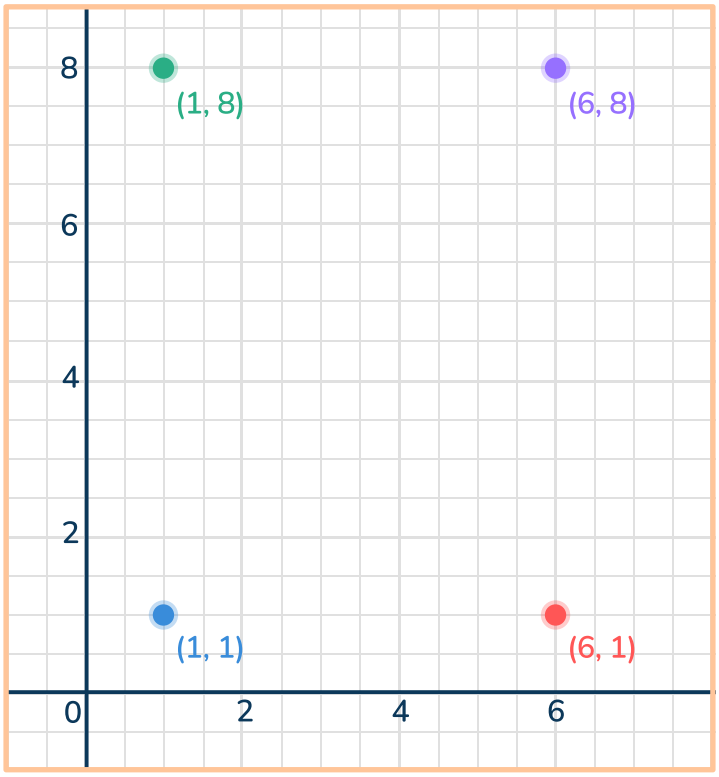
Standard: 6.EE.7
DOK 3

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 ÷ 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 → 21 , 7 x 6 = 42, 7 x 8 = 56 5 → 5 x 3 = 15, 30, 40

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

Item	KEY	Rationale
7	448 inches²	There are two triangular faces that are equal. $2 \times (\frac{1}{2} \times 8 \times 5) = 2(20) = 40$ There are two rectangular faces that are equal. $2 \times (12 \times 13) = 2(156) = 312$ There is one rectangular face that is 8×12. $8 \times 12 = 96$ Add up all the areas. $40 + 312 + 96 = 448$ inches²

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

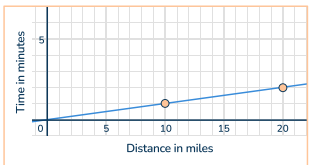
Item	KEY	Rationale
11	$\frac{1}{2}(18a - 36b)$ $9(a - 2b)$	$9a - 18b$ can be rewritten using the distributive property. $\frac{1}{2}(18a - 36b)$ is equivalent to $9a - 18b$. $9(a - 2b)$ is equivalent to $9a - 18b$.

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

Item	KEY	Rationale
13	The cheapest is cashews at $2.78 per pound	$13.12 ÷ 4 = $3.28 almonds $8.34 ÷3 = $2.78 cashews $21.40 ÷ 5 = $4.28 chocolate covered pretzels $5.60 ÷ 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.

Item	KEY	Rationale
17	Box 1	$\text{Volume} = \text{base area} \times \text{height}$ Box 1 has a volume of $32 \times 12\frac{1}{3} = 394\frac{2}{3}$ in³ Box 2 has a volume of $36 \times 9\frac{1}{2} = 342$ in³ Box 1 has a greater interior space since the volume is greater.

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

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

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

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	$15\frac{5}{8}$ cm³	$V = l \times w \times h$ $V = 2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{2}$ $V = \frac{5}{2} \times \frac{5}{2} \times \frac{5}{2}$ $V = \frac{125}{8} = 15\frac{5}{8}$ cm³

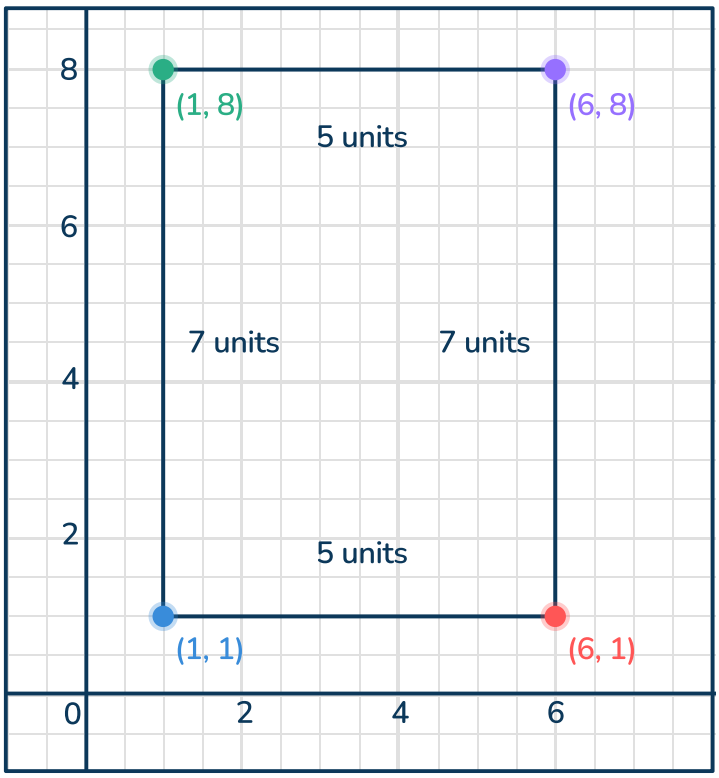
Item	KEY	Rationale
24	$42f$ - 54 and -54 + $42f$	$6(7f - 9) = 42f - 54$ which also equals -54 + $42f$

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

Item	KEY	Rationale
26	Mean: 4.125 inches Median: 4 Mode: 4 and 6 Range: 6	To find the mean add up the lengths and divide by the total amount of lizards: 1+2+2+3+3+3+4+4+4+4+5+6+6+6+6+7 = 66 66 ÷ 16 = 4.125 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. 4 + 4 = 8 8 ÷ 2 = 4 Mode is the data point that occurs the most. In this case it is 4 and 6. Range is the difference between the largest data point and the smallest. 7 - 1 = 6

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

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	 Perimeter = 7 + 7 + 5 + 5 Perimeter = 24 units

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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