THIRD SPACE LEARNING

7th Grade Arizona State Practice Math Test

Arizona Practice Test Grade 7

Grade 7

Questions

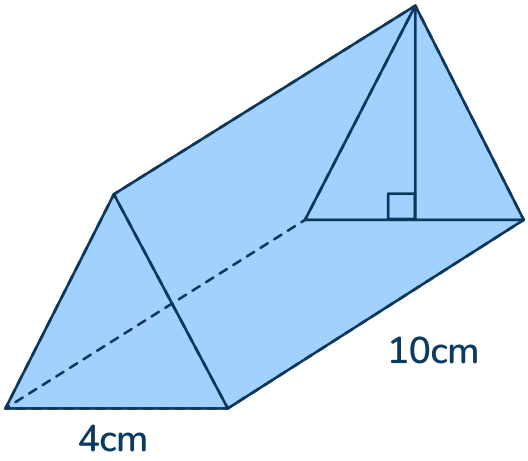
Name: ..... Class: .....

Date: ..... Score: .....

Session 1:
20 Questions

Standard: 7.G.B.6
DOK 2

1 The figure below is a triangular prism. The volume of the prism is 100 cm³, find the height, in centimeters, of the triangular base.



Use the space below to write your answer.

Answer

Standard: 7.NS.A.2
DOK 1

2 What is the value in simplest form?
$(-\frac{3}{7}) \div (\frac{9}{14})$

A. $-\frac{27}{98}$

B. $\frac{27}{98}$

C. $\frac{14}{21}$

D. $-\frac{2}{3}$

Standard: 7.RP.A.3
DOK 2

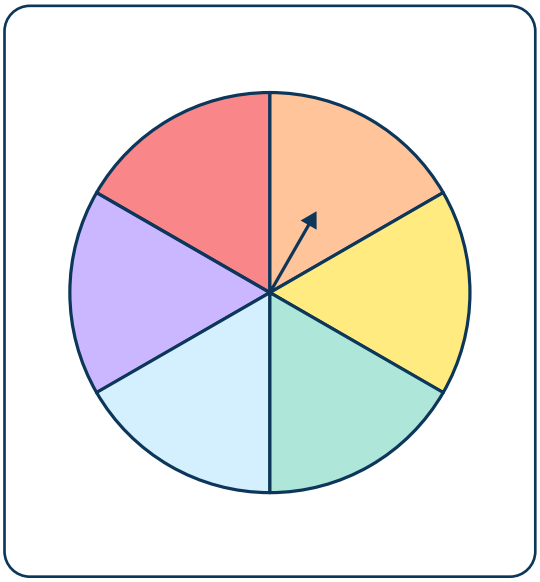
3 A pair of jeans that are originally $84.00 are on sale for 20%. There is a 6% sales tax. How much will you pay for the jeans?
Use the space below to write your answer.

Answer

Standard: 7.SP.C.7
DOK 2

4 The spinner below has 6 equal spaces. The table shows the experimental probability of 60 spins of the spinner. Based on the results, what is the experimental probability that on any one spin the spinner lands on green?

Color	Frequency
Red	8
Orange	12
Yellow	6
Green	17
Blue	10
Purple	7



A. $\frac{1}{6}$

B. $\frac{1}{17}$

C. $\frac{2}{17}$

D. $\frac{1}{10}$

Standard: 7.RP.A.2
DOK 2

5 The table below shows the proportional relationship between x and y. What is the constant of proportionality?

x	y
2	3.5
3	5.25
5	8.75
7	12.25

A. 1.75
B. 1.5
C. 1.25
D. 1

Standard: 7.EE.B.3
DOK 1

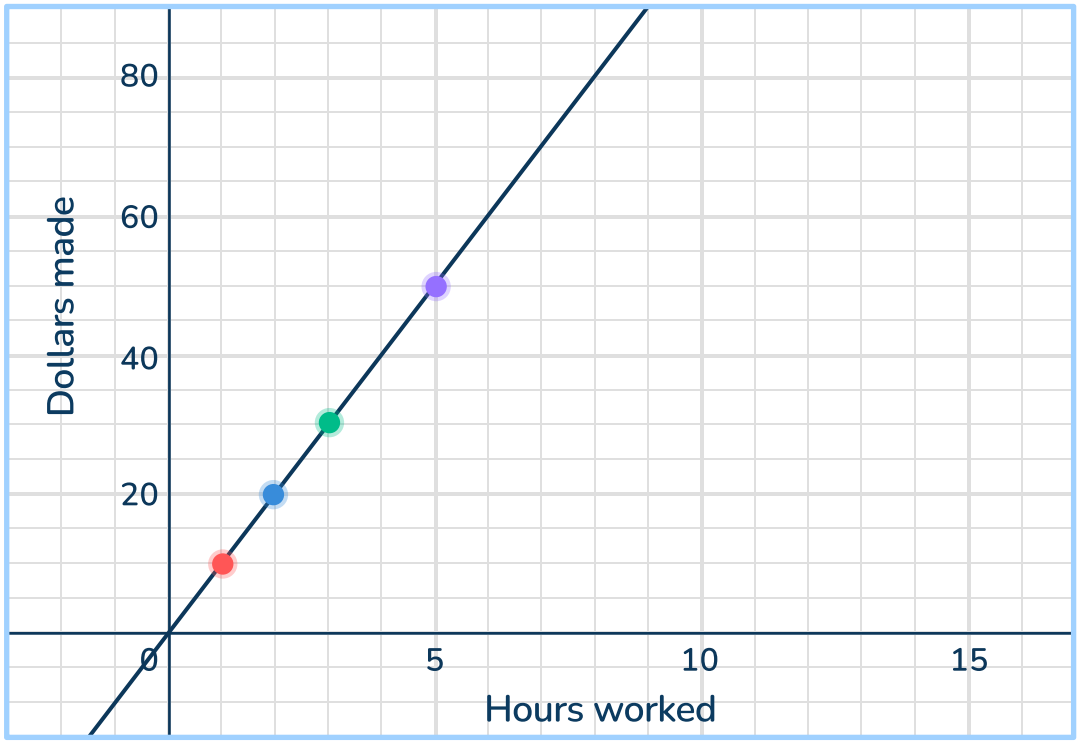
6 Which value of x makes the equation true? Use the space below to write your answer.

$$2(x-5)+6=\frac{1}{2}(6x-18)$$

Answer

Standard: 7.RP.A.2
DOK 3

7 Natalie has a job for the holiday season waiting tables. The graph below shows the relationship between the number of hours she works and the amount of money she makes.



Write an equation that can be used to find the total amount of money (in dollars) she makes for every hour she works.

Use the space below to write the answer.

Answer

Standard: 7.EE.B.3
DOK 2

8 A diner chef made 120 cups of chicken soup. The diner sold 40% of the soup. If a serving size is $1\frac{1}{2}$ cups. How many servings were sold?

A. 48 servings
B. 72 servings
C. 32 servings
D. 30 servings

Standard: 7.NS.A.2
DOK 2

9 In the table below all variables are positive, non-zero integers. Determine if the expression is negative or positive.

Expression	Positive	Negative
$-(-a)(-b)$		
$-a \div (-b)$		
$(-a)(-b)(c)$		
$(-a)(-b) \div (-c)$		

Standard: 7.NS.A.3
DOK 3

10 Lucas bought a subscription to Nitflex and ad-free subscriptions to Sportify and YouChube. He spent a total of $34.50.

- The Netflix subscription cost $12.50.
- Both the Spotify and YouTube subscriptions cost the same amount of money.

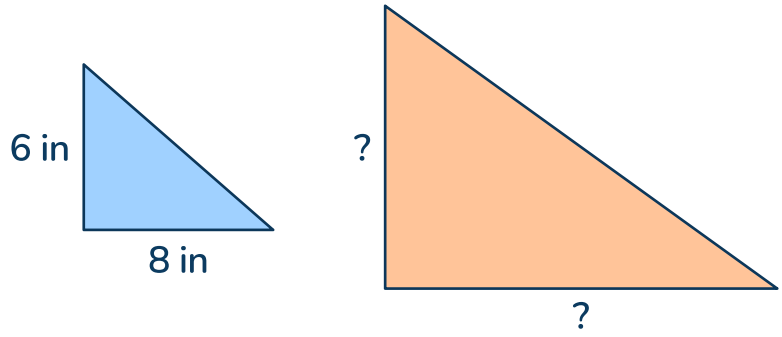
What amount in dollars did Lucas pay for a subscription to Spotify?

Enter your answer in the box below.

Answer

Standard: 7.G.A.1
DOK 2

11 The orange right triangle is a scaled version of the blue right triangle. What are the possible lengths of the two legs of the orange right triangle? Select all that apply.



A. 12 inches and 24 inches
B. 18 inches and 24 inches
C. 9 inches and 12 inches
D. 18 inches and 32 inches
E. 6 inches and 12 inches

Standard: 7.EE.B.3
DOK 3

12 Marta sells bracelets for $8 each. She has already sold 5 bracelets. She wants to earn at least $90. Using the variable, b, to represent the amount of bracelets, write an inequality that represents this situation. Use the space below to write your answer.

Answer

Standard: 7.RP.A.1

DOK 2

13 $\frac{3}{4}$ of a serving has $\frac{1}{3}$ of a cup of fruit. How many cups of fruit are in 1 serving?

A. $2\frac{1}{4}$

B. $1\frac{1}{12}$

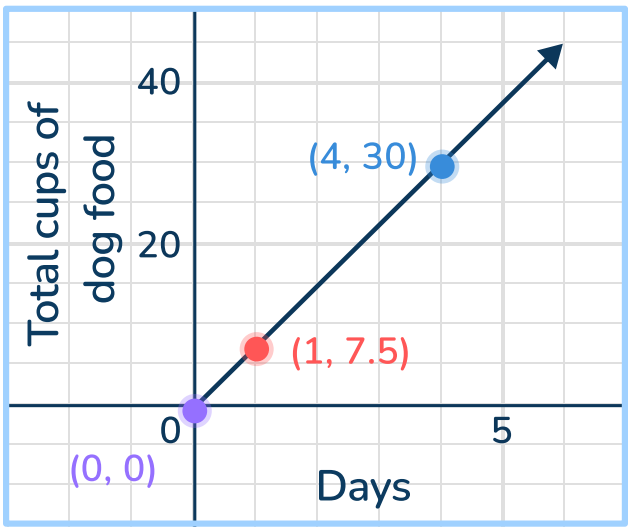
C. $\frac{7}{12}$

D. $\frac{4}{9}$

Answer

Standard: 7.RP.A.2
DOK 2

14 Which statements about the graph are true? Select all that apply.



A. The relationship between days and the total cups of dog food is proportional.
B. The point (1, 7.5) is the unit rate per day.
C. The point (4, 30) shows that after 4 days, the total cups of dog food is 30.
D. The point (3, 23.5) is a point on the line.
E. As the total cups of dog food increases by 1, the days increase by 7.5.

Standard: 7.NS.A.2
DOK 3

15 Lori and Diana went for a jog every day for 7 days.

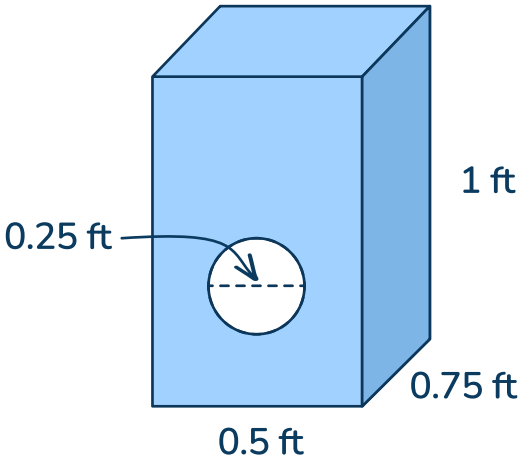
- Lori jogged $3\frac{1}{4}$ miles each day.
- Diana jogged $4\frac{1}{2}$ miles each day.

How much further (in miles) did Diana jog at the end of 7 days than Lori? Use the space to write your answer.

Answer

Standard: 7.G.B.4, 7.G.B.6
DOK 3

16 Celeste paints and sells birdhouses. The paint costs $25.99 a gallon and each gallon paints 400 square feet.

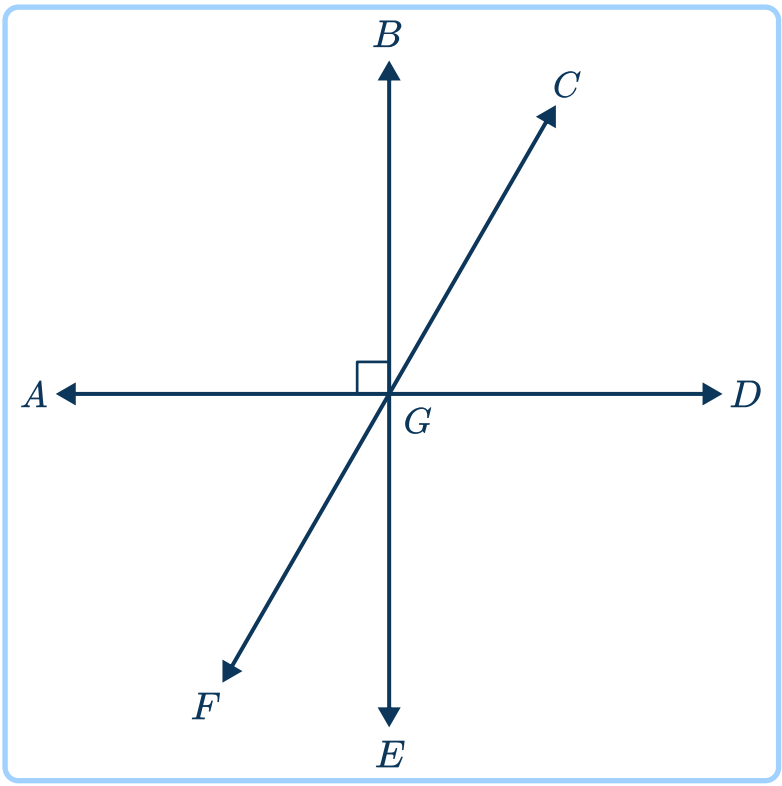


How many square feet of paint does Celeste use to paint the outside of 1 birdhouse? Use the space below to show your work.

Answer

Standard: 7.G.B.5
DOK 1

17 Use the figure below to identify the angles.



Compare each angle to ∠FGE, and check off the correct classification

	Complementary	Supplementary	Vertical	Adjacent
∠ DGE				
∠ AGF				
∠ FGB				
∠ BGC				

Standard: 7.SP.C.5
DOK 2

18 Select all the probabilities that would NOT be considered likely or unlikely.

A. 0.89
B. 0.18
C. 0.48
D. 0.93
E. 0.51

Standard: 7.G.A.2
DOK 3

19 Two sides of a triangle are given to be, 7.3 cm and 4.2 cm. Select the numbers that can represent the third side of the triangle.

10.3 cm 6.1 cm 15.4 cm 11.5 cm 9.6 cm

Standard: 7.RP.A.2
DOK 3

20 Which equation has a constant of proportionality equal to 3? Select all that apply.

A. $3y = 3x$
B. $4y = 12x$
C. $4x = 2y$
D. $3y = 9x$
E. $3y = x$

Session 2:
15 Questions

Standard: 7.EE.A.1
DOK 2

1 Which expression is equivalent to $-\frac{1}{4}(12x - 24y + 8)$?

A. $4x + 6y - 2$
B. $3x - 4y + 2$
C. $-3x + 6y - 2$
D. $-3x - 6y + 2$

Standard: 7.G.B.5
DOK 2

2 A school is going to put down a rubber matting covering the ground of its circular playground. If the circumference of the playground is about 69.1 ft, how much square footage of matting does the school need to have to cover the entire playground (to the nearest tenth)?

Use the space below to write your answer.

Answer

Standard: 7.RP.A.2
DOK 2

3 Jill is a natural wildlife photographer. She takes the same amount of pictures each day for 8 days. The table below represents the total number of pictures she has after 8 days. How many pictures in total does Jill have on day 3?

Number of days	Total amount of pictures
2	76
5	190
8	304

Write your answer in the space below.

Answer

Standard: 7.EE.B.3
DOK 1

4 What is the value of the expression, $99 \div 11 - 2(7 - 3)^2$?
Write the answer in the box below.

Answer

Standard: 7.RP.A.3
DOK 2

5 Two sporting goods stores are having a holiday sale on kayaks. The original price of the kayak at both stores is $205.

- Store A is having a 25% off sale and
- Store B is having a 20% off sale.

How much more money will a customer pay for the Kayak if they go to Store B?

Use the space below to show your work.

Answer

Standard: 7.RP.A.2
DOK 1

6 Which table shows a proportional relationship between x and y?

A.

x	y
2	5
4	10
8	19

B.

x	y
2	6
4	12
8	24

C.

x	y
2	6
4	16
8	40

D.

x	y
2	3
4	6
8	11

Standard: 7.SP.C.7
DOK 3

7 A bag contains red marbles, blue marbles and green marbles. The number of each of the marbles in the bag is as follows:

- 10 red marbles
- 15 blue marble
- 25 green marbles

What is the probability that the marble selected is red or blue?

A. $\frac{1}{5}$

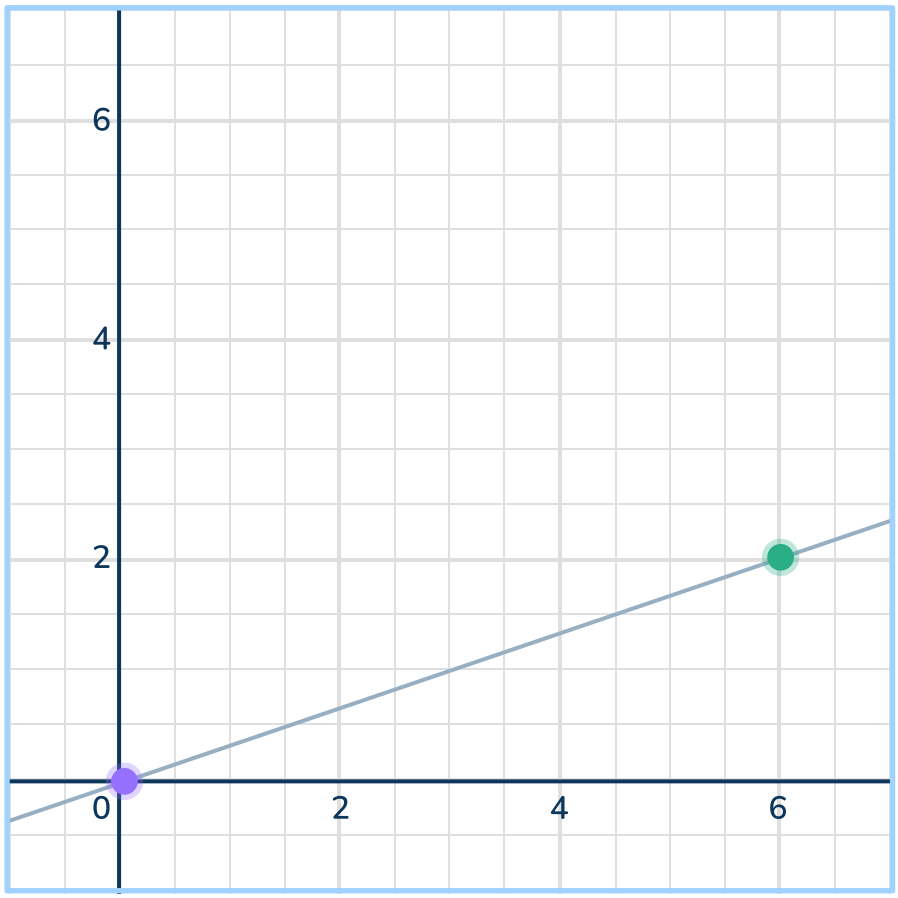
B. $\frac{3}{50}$

C. $\frac{1}{2}$

D. $\frac{3}{10}$

Standard: 7.RP.A.2
DOK 2

8 What is the constant of proportionality?



Write your answer in the space below.

Answer

Standard: 7.EE.B.3
DOK 2

9 A stone yard has 450 pounds of a particular stone to sell. They sold 30% of these stones. If 1 stone is equal to 1.5 pounds, how many actual stones were sold?

Place your answer in the space below.

Answer

Standard: 7.NS.A.1
DOK 1

10 Which expression has the same value as $-\frac{4}{9} - \frac{3}{10}$?

A. $-\frac{4}{9} + \frac{3}{10}$

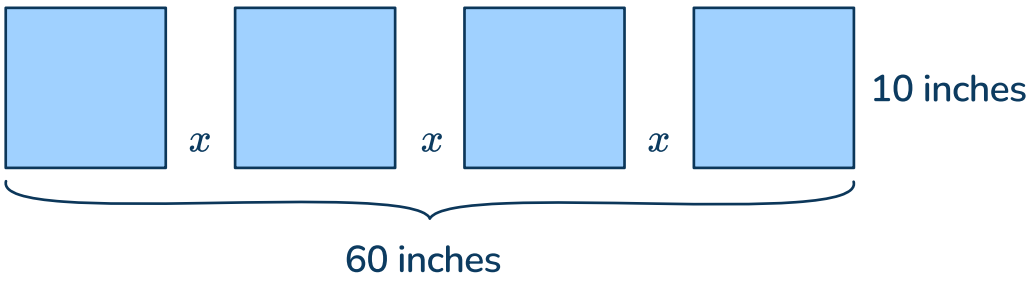
B. $\frac{4}{9} + \frac{3}{10}$

C. $-\frac{4}{9} + (-\frac{3}{10})$

D. $-\frac{4}{9} - (-\frac{3}{10})$

Standard: 7.EE.B.4
DOK 3

11 Hazel is hanging 4 square picture frames on the wall. The space between each frame is the same. The frames are 10 inches by 10 inches and the space on the wall measures 10 inches by 60 inches. How far apart is each frame?



A. 20 inches

B. 6 inches

C. $6\frac{2}{3}$ inches

D. $13\frac{1}{3}$ inches

Standard: 7.EE.B.3
DOK 2

12 Dena is going to the movie theater. She has only $40 to spend at the theater. The ticket cost $18. She also bought a small coke, medium popcorn, and a box of Swedish fish to share with a friend. The cost of the food is:

- Small coke = $3.75
- Medium popcorn = $12.50
- Box of Swedish fish = $5.20

How much money will Dena have left?
Use the space below to write your answer.

Answer

Standard: 7.RP.A.2
DOK 2

13 The table below shows a proportional relationship between the time traveled and the distance traveled of a car moving at a constant speed. Which car is faster?

Car A

Hours	Distance traveled
2	150 miles
4	300 miles
6	450 miles
8	600 miles

Car B

Hours	Distance traveled
5	360 miles
7	504 miles
9	648 miles
11	792 miles

Use the space below to write your answer.

Answer

Standard: 7.NS.A.1
DOK 2

14 Which scenario below will result in a final value of zero?

A. The overall change in temperature from 9° to -9°.
B. The balance of an account after a $15 payment, if the starting balance was –$15.
C. Walking from a train platform that is -5 feet below sea level to the street.
D. A hot air balloon that goes from sea level to 15 meters above sea level.

Standard: 7.RP.A.2
DOK 3

15 Dillion is a speed reader. He reads 105 pages in 7 minutes. If the number of pages he reads is proportional to time, in minutes, how many pages will he read in 1 hour?

Answer

Answer Key

Answer Key			
Session 1			
Item number	Correct answer	Standard(s)	DOK
1	5 cm	**7.G.B.6**	DOK 2
2	D	**7.NS.A.2**	DOK 1
3	$71.23	**7.RP.A.3**	DOK 2
4	B	**7.SP.C.7**	DOK 2
5	A	**7.RP.A.2**	DOK 2
6	$x = 5$	**7.EE.B.3**	DOK 1
7	$y = 10x$	**7.RP.A.2**	DOK 3
8	C	**7.EE.B.3**	DOK 2
9	$-(-a)(-b)$ negative $-a(-b)$ positive $(-a)(-b)(c)$ positive $(-a)(-b)(-c)$ negative	**7.NS.A.2**	DOK 2
10	$11	**7.NS.A.3**	DOK 3
11	B, C	**7.G.A.1**	DOK 2
12	$8b + 40 \geq 90$	**7.EE.B.3**	DOK 3
13	D	**7.RP.A.1**	DOK 2
14	A, B, C	**7.RP.A.2**	DOK 2

Answer Key			
Session 1			
Item number	Correct answer	Standard(s)	DOK
15	$8\frac{3}{4}$ miles more	**7.NS.A.2**	DOK 3
16	3.2009375 ft²	**7.G.B.4, 7.G.B.6**	DOK 3
17	∠DGE is adjacent to ∠FGE ∠AGF is complimentary to ∠FGE ∠FGB is supplementary to ∠FGE ∠BGC is vertical to ∠FGE	**7.G.B.5**	DOK 1
18	C, E	**7.SP.C.5**	DOK 2
19	10.3 cm because 7.3 + 4.2 > 10.3 6.1 cm because 4.2 + 6.1 > 7.3 9.6 cm because 4.2 + 7.3 > 9.6	**7.G.A.2**	DOK 3
20	B, D	**7.RP.A.2**	DOK 3
Session 2			
Item number	Correct answer	Standard(s)	DOK
1	C	**7.EE.A.1**	DOK 2
2	$A = 380.0ft^2$	**7.G.B.5**	DOK 2
3	114 pictures	**7.RP.A.2**	DOK 2
4	-23	**7.EE.B.3**	DOK 1

Session 2			
Item number	Correct answer	Standard(s)	DOK
5	$10.25	**7.RP.A.3**	DOK 2
6	B	**7.RP.A.2**	DOK 1
7	C	**7.SP.C.7**	DOK 3
8	$\frac{1}{3}$	**7.RP.A.2**	DOK 2
9	90	**7.EE.B.3**	DOK 2
10	C	**7.NS.A.1**	DOK 1
11	C	**7.EE.B.4**	DOK 3
12	$0.55	**7.EE.B.3**	DOK 2
13	Car A is faster, 75 mph	**7.RP.A.2**	DOK 2
14	B	**7.NS.A.1**	DOK 2
15	900 pages in 1 hour	**7.RP.A.2**	DOK 3

Rationales

Item	Score	Rationale
1	1	The student use the formula, V= (area of the base) x height, and identifies the base to be a triangle with a base of 4 cm and the height of the prism is 10 cm. Dividing the volume by 10, 100 ÷ 10 = 10, which means the area of the triangle base has to be equal to 10 cm². $A = \frac{1}{2}bh$ $10 = \frac{1}{2}(4)(h)$ $5 = h$ The height of the triangular base is 5 cm.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
2	1	The student correctly divides the fractions, $(-\frac{3}{7}) \div (\frac{9}{14})$ $(-\frac{3}{7}) \times \frac{14}{9} = -\frac{42}{63} = -23$ D
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
3	1	The student makes the correct calculations, by first finding the sale price which is 80% of the original price. 84 x 0.80 = 67.20 Then find the tax amount. 67.20 x 0.06 = 4.032 Add the tax amount to the sale price. 67.20 + 4.032 = 71.232 = $71.23
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
4	1	The student identifies that based on the table of the experiential probability, there is a 1 out of 17 chance that the spinner will land on green, B.
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
5	1	The student calculates the constant rate between x and y to be 1.75 because, 2 x 1.75 = 3.5 3 x 1.75 = 5.25 5 x 1.75 = 8.75 7 x 1.75 = 12.25 A
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
6	1	The student solves the equation correctly, $2(x - 5) + 6 = \frac{1}{2}(6x - 18)$ $2x - 10 + 6 = 3x - 9$ $2x - 4 = 3x - 9$ $-x = -5$ $x = 5$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
7	1	The student correctly identifies that Natalie makes $10 for every hour she works as noted by the points on the graph and the line. (1, 10), (2, 20), (3, 30) (5, 50) So the equation is, $y = 10x$
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
8	1	The student calculates, 120 x 0.40 = 48 48 cups of soup were sold and a serving size is $1\frac{1}{2}$ $48 \div 1\frac{1}{2}$ $48 \div \frac{3}{2}$ $48 \times \frac{2}{3} = 32$ 32 servings were sold, C
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
9	1	The student identifies: $-(-a)(-b)$ negative $-a \div (-b)$ positive $(-a)(-b)(c)$ positive $(-a)(-b) \div (-c)$ negative
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
10	1	The student calculates correctly by: \$34.50 - \$12.50 = \$22 \$22 ÷ 2 = \$11, He paid \$11
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
11	1	The student selects the ratios that are equal to 6 to 8 which is B, 18 to 24 and C, 9 to 12
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
12	1	The student correctly writes the inequality, $8b + 40 \geq 90$
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
13	1	The student correctly calculates the unit rate, $\frac{\frac{1}{3}}{\frac{3}{4}} = \frac{1}{3} \times \frac{4}{3} = \frac{4}{9}$ cups of fruit per serving, D
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
14	1	The student correctly identifies A,B, and C as the answers. Since the line is going through the origin it represents a proportional relationship. The point (1. 7.5) is the unit rate because it represents the amount of cups of dog food per day and the point (4, 30) is on the line representing the same proportional relationship.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
15	1	The student calculates: Lori = $7 \times 3\frac{1}{4} = 22\ \frac{3}{4}$ miles Diana = $7 \times 4\frac{1}{2} = 31\ \frac{1}{2}$ miles $31\ \frac{1}{2} - 22\frac{3}{4} = 8\ \frac{3}{4}$ $8\frac{3}{4}$ miles more
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
16	1	The student correctly calculates: • Top/bottom: 0.5 0.75 x 2 = 0.75 • Left/right side: 0.75 1 x 2 = 1.5 • Back side: 0.5 1 = 0.5 • Front side: 0.5 – (0.1252 3.14) = 0.4509375 • Total surface area: 0.75 + 1.5 + 0.5 + 0.4509375 = 3.2009375 ft²
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
17	1	The student selects the correct classification. ∠DGE is adjacent to ∠FGE ∠AGF is complimentary to ∠FGE ∠FGB is supplementary to ∠FGE ∠BGC is vertical to ∠FGE
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
18	1	The student correctly interperts NOT being considered likely or unlikely a being near 50% or 0.50 which is choice C and E
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
19	1	The student understands that the two shorter sides added together must be longer than the third side so the numbers that work are: 10.3 cm because 7.3 + 4.2 > 10.3 6.1 cm because 4.2 + 6.1 > 7.3 9.6 cm because 4.2 + 7.3 > 9.6
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
20	1	The student correctly identifies B and D because: $4y = 12x$ simplifies to be $y = 3x$ where 3 is the constant of proportionality and $3y = 9x$ simplifies to be $y = 3x$ where 3 is the constant of proportionality.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
1	1	The student simplifies the expression correctly, $-\frac{1}{4}(12x - 24y + 8)$ $-3x + 6y - 2$ C
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
2	1	The student calculates the area correctly by first finding the radius using circumference. $c = d\Pi$ 69.1 = d (Π) 21.9952... = d 21.9952 ÷ 2 = 10.9976..., the radius is 10.9976... ft $A = \Pi r^2$ $A = \Pi(10.9976\ldots)^2$ $A = 380.0 ft^2$
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
3	1	The student calculates the unit rate to be 38 pictures per day, so the amount of pictures on day 3 is 38 x 3 = 114 114 pictures
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
4	1	The student calculates the expression correctly using the order of operations. 99 ÷ 11-2(7-3)² 9 - 2(4)² 9 - 2(16) 9 - 32 = -23
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
5	1	The student makes the correct calculations. Price of kayak at Store A = $153.75 Price of kayak at Store B - $164 $164 - $153.75 = $10.25 $10.25 is how much more a customer will pay for the kayak
	0	Answer is incorrect or irrelevant.

Item	Item	Rationale
6	1	The student correctly selects choice B because the x value is being multiplied by 3 resulting in a proportional relationship.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
7	1	The student made the correct calculations for the probabilities. prob of red = $\frac{10}{50}$ prob of blue = $\frac{15}{50}$ prob of selecting red and blue = $\frac{10}{50} + \frac{15}{50} = \frac{25}{50} = \frac{1}{2}$ C
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
8	1	The student interprets the graph and constant of proportionality. Using the graph there is a constant rate of change from point to point. 2 units up and 6 units right which is 1 to 3 proportional relationship. $\frac{1}{3}$ is the contant of proportionality.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
9	1	The student makes the correct calculations. $450 \times 0.30 = 135$ 135 pounds of stone were sold and 1 stone is 1.5 pounds $135 \div 1\frac{1}{2}$ $135 \div \frac{3}{2}$ $135 \div \frac{2}{3} = 90$ 90 stones were sold.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
10	1	The student recognizes that, $-\frac{4}{9} - \frac{3}{10} = -\frac{4}{9} + (-\frac{3}{10})$ C
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
11	1	The student calculates the following, Each frame is 10 inches in width which means it is 40 inches of the 60 inches of wall space. There are 3 equal spaces in between the frames. So, $20 \div 3 = 6\frac{2}{3}$ Meaning that each space is $6\frac{2}{3}$ inches, C
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
12	1	The student calculates, $40 - $18 = $22 (subtract the $18 for the ticket price) $22 to buy food. $3.75 + $12.50 + $5.20 = $21.45 $22 - $21.45 = $0.55 (subtract the amount spent on food from amount left) There is $0.55 left.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
13	1	The student finds the speed of each car, Car A 150 ÷ 2 = 75 75 mph Car B 360 ÷ 5 = 72 72 mph Car A is faster.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
14	1	The student correctly identifies B as the answer because $15 is deposited into an account that has a -$15 balance there will be $0 in there.
	0	Answer is incorrect or irrelevant.

Item	Score	Rationale
15	1	The student correctly calculates the unit rate and the amount of pages he reads in 1 hour. 105 ÷ 7 = 15 pages per minute 15 x 60 = 900 pages in 1 hour
	0	Answer is incorrect or irrelevant.

Breakdown of Assessment by domain				
Ratios & Proportional Relationships	Expressions, Equations, and Inequalities	The Number System	Geometry	Statistics and Probability
33%	23%	17%	19%	8%

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