



THIRD SPACE
LEARNING

7th Grade Arkansas State Practice Math Test

Arkansas Practice Test Grade 7

Grade 7

Questions

Name:

Class:

Date:

Score:

SESSION 1:

No Calculator:

Standard: 7.NS.A.1

DOK 1

- 1** Select all the numbers that represent the quotient.

$$\left(-\frac{3}{7}\right) \div \left(\frac{9}{14}\right)$$

☐ $-\frac{42}{63}$

☐ $-\frac{27}{98}$

☐ $\frac{42}{63}$

☐ $-\frac{2}{3}$

☐ $\frac{2}{3}$

☐ $\frac{27}{98}$

Standard: 7.EE.A.1

DOK 2

- 2 Select the expression that is equivalent to the expression below.

$$8 + 7(2x - 4)$$

- ☐ $9x + 4$
- ☐ $14x - 28$
- ☐ $14x - 20$
- ☐ $9x - 20$
- ☐ $-20 + 14x$
- ☐ $-28 + 14x$

Standard: 7.SP.C.5

DOK 2

- 3 The weather app indicates that the probability of snow tomorrow is 0.83.
Select the word that best describes the likelihood of snow tomorrow.

- ☐ likely
- ☐ certain
- ☐ unlikely
- ☐ impossible

Standard: 7.EE.B.3

DOK 1

- 4 Select the value of x that makes the equation true.

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

- ☐ $x = -5$
 - ☐ $x = 13$
 - ☐ $x = -13$
 - ☐ $x = 5$
 - ☐ $x = -3$
-

Standard: 7.NS.A.1

DOK 1

- 5 Select the expression that has the same value as $-\frac{4}{9} - \frac{3}{10}$

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

SESSION 2
Calculator permitted

Standard: 7.RP.A.2
DOK 2

- 6
- 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

 Answer

Standard: 7.RP.A.1

DOK 2


- 7 Bill runs $9\frac{1}{2}$ miles in $1\frac{1}{2}$ hours. Find the average speed in miles per hour.

Answer:_____

Standard: 7.RP.A.3

DOK 2

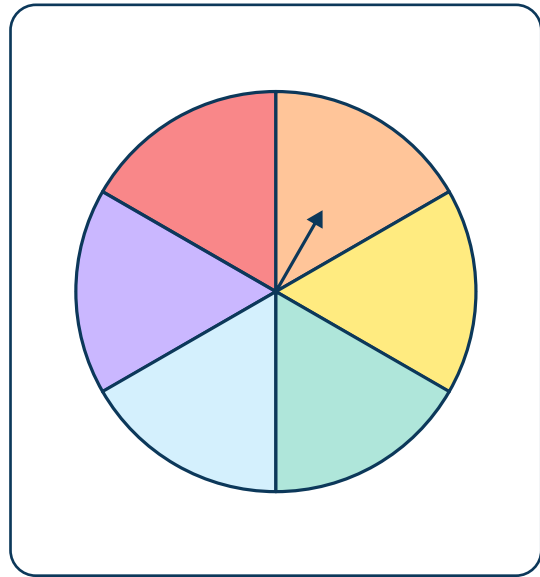
- 8 A pair of jeans that were originally \$84.00 are on sale for 20%. There is a 6% sales tax. How much will you pay for the jeans?

 Answer

Standard: 7.SP.C.7**DOK 2**

- 9 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



Answer:_____

Standard: 7.EE.B.3

DOK 1

- 10 Find the value of the expression, $99 \div 11 - 2(7 - 3)^2$

 Answer

Standard: 7.RP.A.2

DOK 1

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

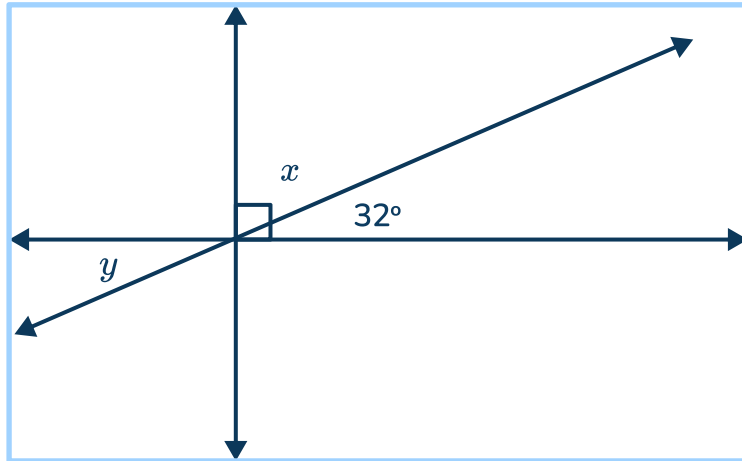
Answer:_____


x	y
2	3.5
3	5.25
5	8.75
7	12.25

Standard: 7.G.B.5

DOK 2

- 12 Find the value of the angles represented by x and y .



 Answer

Standard: 7.RP.A.3

DOK 2

13 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?

Answer:_____

Standard: 7.EE.B.4

DOK 2

14 The expression below represents the perimeter of a square.

$$64x + 8y$$

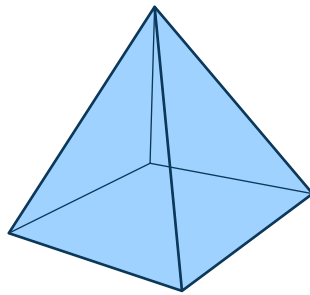
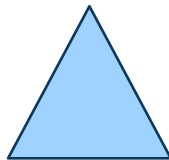
Write an expression that represents the length of one of the sides of the square.

Answer:_____

Standard: 7.G.A.3

DOK 1

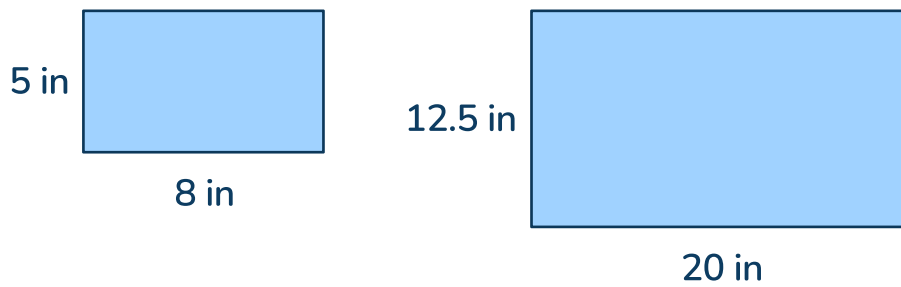
- 15** Select the two-dimensional shape that results from a horizontal cross section of the pyramid below.

☐☐☐☐

Standard: 7.G.A.1

DOK 2

- 16** The rectangles below are proportional. What is the scale factor from the small rectangle to the large rectangle?



Answer:_____

Standard: 7.RP.A.2**DOK 1**

- 17** Select the table that shows the proportional relationship between x and y .

☐

x	y
2	5
4	10
8	19

☐

x	y
2	6
4	12
8	24

☐

x	y
2	6
4	16
8	40

☐

x	y
2	3
4	6
8	11

Standard: 7.NS.A.1

DOK 2

- 18 Overnight, the temperature decreased by 4 degrees. If the original temperature was -1°F . Select all the expressions that can be used to represent this situation.

- ☐ $1 - 4$
 - ☐ $1 - (-4)$
 - ☐ $-1 - 4$
 - ☐ $-1 + 4$
 - ☐ $-1 + (-4)$
 - ☐ $1 - (-4)$
-

Standard: 7.SP.C.8

DOK 2

- 19 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 marbles
 - 25 green marbles

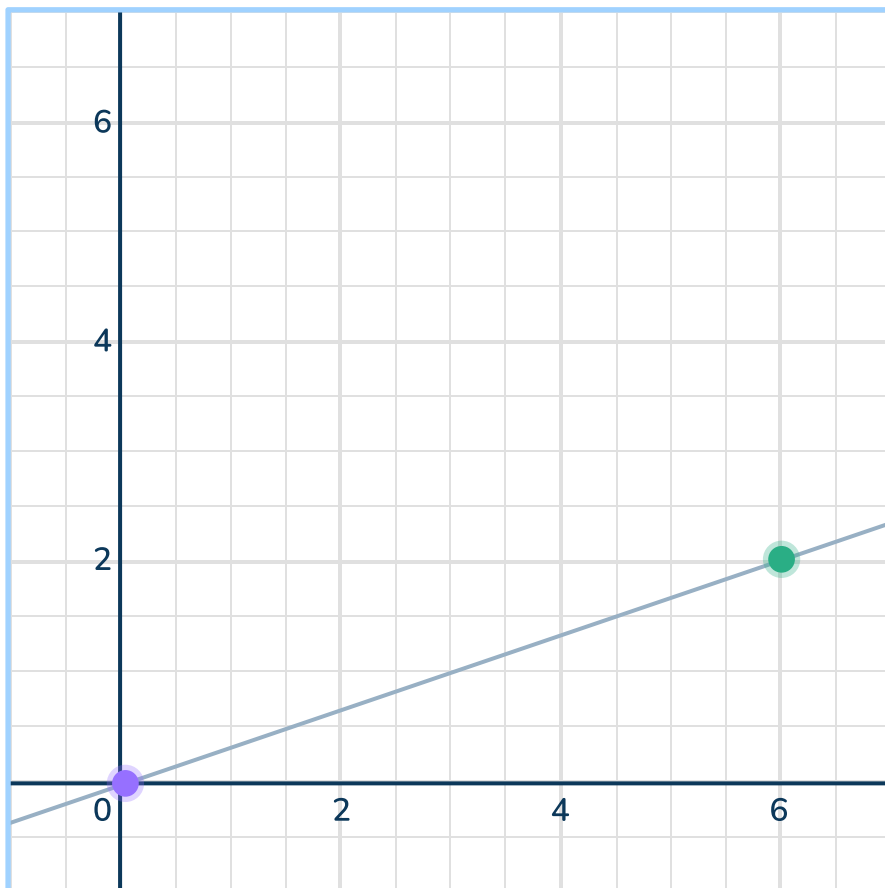
What is the probability that the marble selected is red or blue?

Answer:_____

Standard: 7.RP.A.2

DOK 2

- 20 Use the graph below to determine the constant of proportionality.



Answer:_____

Standard: 7.RP.A.3

DOK 3

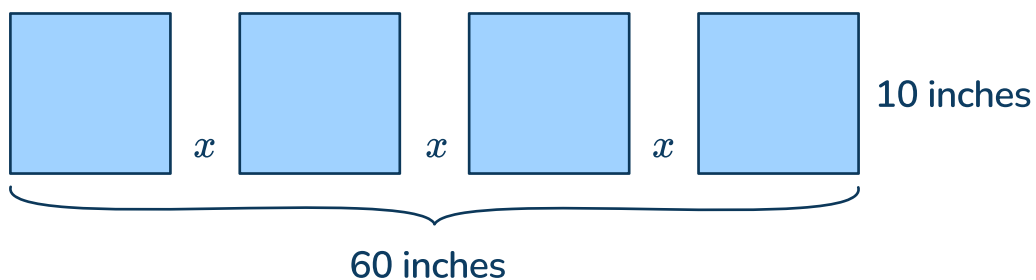
- 21 A diner chef made 120 cups of chicken soup. The diner sold 40% of the soup. If a serving size is $1\frac{1}{2}$ cups. How many servings were sold?

 Answer

Standard: 7.EE.B.4

DOK 3

- 22 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?



Standard: 7.NS.A.3

DOK 3

- 23 The temperature in Anchorage, Alaska on Monday night was -15° . Tuesday morning the temperature increased by 8° and then Tuesday night it decreased by 3° . Wednesday morning the temperature increased by 6° . What was the temperature Wednesday morning? Be sure to show all of your work.


Answer:_____

Standard: 7.EE.B.3**DOK 3**

- 24** A student incorrectly simplifies the expression below. In which step did the student make the first mistake? Correct the mistake and simplify the expression.

$$\frac{2}{5}(10 - 15) + 8 \div 2$$


- Step 1: $\frac{2}{5}(5) + 8 \div 2$
- Step 2: $2 + 8 \div 2$
- Step 3: $2 + 4$
- Step 4: 6

 Answer

Standard: 7.RP.A.3

DOK 3

- 25 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, what is the unit rate? How many pages will he read in 1 hour?

 Answer

Rationales

Item	KEY	Rationale
1	$-\frac{42}{63}$ $-\frac{2}{3}$	$(-\frac{3}{7}) \div (\frac{9}{14})$ $-\frac{3}{7} \times \frac{14}{9} = -\frac{42}{63} = -\frac{2}{3}$

Item	KEY	Rationale
2	$14x - 20$ $-20 + 14x$	$8 + 7(2x - 4)$ $8 + 14x - 28$ $-20 + 14x$ or $14x - 20$

Item	KEY	Rationale
3	Likely	0.83 means an 83% chance of snow which is very likely.

Item	KEY	Rationale
4	$x = 5$	$2(x - 5) + 6 = \frac{1}{2}(6x - 18)$ $2x - 10 + 6 = 3x - 9$ $2x - 4 = 3x - 9$ $-x = -5$ $x = 5$

Item	KEY	Rationale
5	$-\frac{4}{9} + (-\frac{3}{10})$	$-\frac{4}{9} - \frac{3}{10}$ is equal to $-\frac{4}{9} + (-\frac{3}{10})$ because the + and - becomes just -

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Item	KEY	Rationale
6	114	$3 \times 38 = 114$ or $38 + 38 + 38 = 114$.

Item	KEY	Rationale
7	$7\frac{3}{5}$ miles per hour	$\frac{9\frac{1}{2}}{1\frac{1}{4}} =$ $9\frac{1}{2} \div 1\frac{1}{4} =$ $\frac{19}{2} \div \frac{5}{4} =$ $\frac{19}{2} \times \frac{4}{5} =$ $\frac{76}{10} = 7\frac{6}{10} = 7\frac{3}{5}$

Item	KEY	Rationale
8	\$71.23	<p>20% discount means you are paying 80% of the full price.</p> $84 \times 0.80 = 67.20$ (discount) $67.20 \times 0.06 = 4.032$ (tax) $67.20 + 4.032 = 71.232 = \71.23

Item	KEY	Rationale
9	$\frac{1}{17}$	Through the experiment the spinner landed on green 17 times which is a probability of $\frac{1}{17}$

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Item	KEY	Rationale
10	-23	<p>Following order of operations:</p> $99 \div 11 - 2(7-3)^2$ $99 \div 11 - 2(16)$ $99 \div 11 - 32$ $9 - 32 = -23$

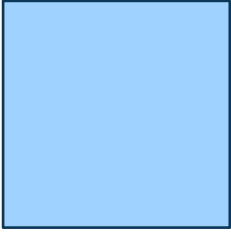
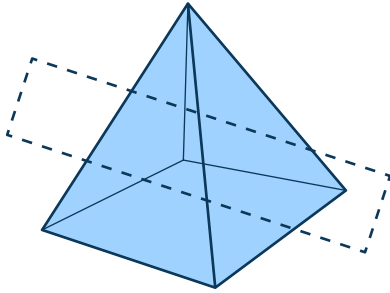
Item	KEY	Rationale
11	1.75	<p>The constant rate between x and y is 1.75.</p> $2 \times 1.75 = 3.5$ $3 \times 1.75 = 5.25$ $5 \times 1.75 = 8.75$ $7 \times 1.75 = 12.25$

Item	KEY	Rationale
12	$x = 58$ $y = 32$	<p>32 and the angle represented by x are complementary angles.</p> $32 + x = 90$ $x = 58$ <p>32 and the angle represented by y are vertical angles.</p> $32 = y$

Item	KEY	Rationale
13	\$10.25	<p>Price of kayak at Store A = \$153.75</p> <p>Price of kayak at Store B = \$164</p> $164 - 153.75 = 10.25$ <p>\$10.25 is how much more a customer will pay for the kayak</p>

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Item	KEY	Rationale
14	$16x + 2y$	<p>A square has 4 equal sides. So, divide the expression by 4.</p> $\frac{64x + 8y}{4} = 16x + 2y$

Item	KEY	Rationale
15		<p>Slicing the pyramid horizontally, results in a square cross section.</p> 

Item	KEY	Rationale
16	Scale factor is 2.5	<p>Since the two rectangles are proportional, a proportion can be written in the form:</p> $\frac{5}{8} = \frac{12.5}{20}$ <p>Multiplying the first ratio by 2.5 gives the exact value of the second ratio. So, the scale factor is 2.5.</p> $\frac{5 \times 2.5}{8 \times 2.5} = \frac{12.5}{20}$ <p>Also, the scale factor is larger than 1 because the second rectangle is larger than the first rectangle.</p>

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Item	KEY	Rationale								
17	<p>The second table is the correct choice:</p> <table><tr><td>x</td><td>y</td></tr><tr><td>2</td><td>→ 6</td></tr><tr><td>4</td><td>→ 12</td></tr><tr><td>8</td><td>→ 24</td></tr></table>	x	y	2	→ 6	4	→ 12	8	→ 24	<p>From the x value to the y value there is a constant of times 3. Meaning that the values are proportional.</p> $\frac{x}{y} = \frac{2}{6} = \frac{4}{12} = \frac{8}{24} = \frac{1}{3}$
x	y									
2	→ 6									
4	→ 12									
8	→ 24									

Item	KEY	Rationale
18	<p>- 1 - 4 - 1 + (- 4)</p>	<p>The expression, -1- 4 is interpreted as -1 minus 4 which translates to -1 degrees decreased or minus 4 degrees.</p> <p>The expression, -1 + (- 4) is interpreted as -1 and -4 or -1 degrees plus -4 degrees. The expression also simplifies to be -1 - 4 which is equivalent to -1 - 4.</p>

Item	KEY	Rationale
19	$\frac{1}{2}$	<p>prob of red = $\frac{10}{50}$</p> <p>prob of blue = $\frac{15}{50}$</p> <p>prob of selecting red and blue = $\frac{10}{50} + \frac{15}{50} = \frac{25}{50} = \frac{1}{2}$</p>

Item	KEY	Rationale
20	$\frac{2}{6}$ or $\frac{1}{3}$	<p>Using the graph there is a constant rate of change from point to point. 2 units up and 6 units right which is a 1 to 3 proportional relationship. For example from the point (0, 0) to the point (2, 6) is 2 units up and 6 units right.</p>

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Item	KEY	Rationale
21	32 servings	$1200 \times .40 = 48$ (40% of 120) 48 cups of soup were sold and a serving size is $1\frac{1}{2}$ cups $48 \div 1\frac{1}{2}$ $48 \div \frac{3}{2}$ $48 \times \frac{2}{3} = \frac{3}{2}$ 32 servings were sold.

Item	KEY	Rationale
22	$6\frac{2}{3}$ inches	Each frame is 10 inches in width which means it makes up 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

Item	KEY	Rationale
23	-4° on Wednesday morning	$-15 + 8 = -7$ $-7 - 3 = -10$ $-10 + 6 = -4$ The temperature was -4° Wednesday morning.

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Item	KEY	Rationale
24	<p>The student made the mistake in Step 1.</p> <p>The correction is:</p> $\frac{2}{5} (10 - 15) + 8 \div 2$ $\frac{2}{5} (-5) + 8 \div 2$ <p>The expression simplifies to be 2.</p>	<p>The mistake was first made in Step 1. $10 - 15$ is -5 not 5.</p> <ul style="list-style-type: none"> • Step 1: $\frac{2}{5} (-5) + 8 \div 2$ • Step 2: $-2 + 8 \div 2$ • Step 3: $-2 + 4$ • Step 4: 2

Item	KEY	Rationale
25	<p>Unit rate: 15 pages per minute</p> <p>Pages read in 1 hour = 900 pages</p>	<p>To receive 2 points, students need to correctly find the unit rate and the amount of pages he reads in 1 hour.</p> $105 \div 7 = 15 \text{ pages per minute}$ $15 \times 60 = 900 \text{ pages in 1 hour}$




Breakdown of Assessment				
Ratios & Proportional Relationships	Expressions, Equations, and Inequalities	The Number System	Geometry	Statistics and Probability
36%	24%	16%	12%	12%

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