

Proportional Relationships Final Assessment

1.) Note: Instead of dragging, draw or write your answer in the space provided.

Scott's soup recipe for 4 servings has 3 carrots and 2 celery sticks.

A. Drag carrots and celery sticks into the pot to show how much Scott needs for 8 servings.

Paul's soup has tomatoes and potatoes.

B. Drag numbers into the boxes to show the ratio of tomatoes to potatoes.

Carrot

Celery

0

1

2

3

4

5

6

7

8

9

Delete

A.

B.

Tomatoes to Potatoes

:

2.)

Object A

Object B

Object C

Time (seconds)	Distance (meters)
0	0
3	10
6	20
9	30

Object C moves at constant speed.

Object D

Time (seconds)	Distance (meters)
0	0
1.5	10
3	20
4.5	30

Object D moves at constant speed.

If an object has constant speed, then the speed can be computed by the change in distance divided by the change in time.

Information about objects A, B, C and D are shown. Objects C and D both have constant speed.

Based on the information given, drag and drop the object names in order from greatest speed to least speed in the table provided.

Object A	Greatest Speed Least Speed	
Object B		
Object C		
Object D		

Note: Write the name of the objects into the blank boxes above to show the order from greatest to least speed.

3.) A person who weighs 150 pounds on Earth would weigh 56.5 pounds on Mars. How much would a child who weighs 60 pounds on Earth weigh on Mars?

4.) One brand of orange juice is sold in four different sizes. The 8-ounce bottle costs \$0.99. The 18-ounce bottle costs \$1.49. The 48-ounce carton costs \$2.49. The 64-ounce carton costs \$3.75.

a. Calculate the unit rate (cost per ounce) for each size.

Unit Rate for 8-ounce bottle: _____

Unit Rate for 18-ounce bottle: _____

Unit Rate for 48-ounce bottle: _____

Unit Rate for 64-ounce bottle: _____

b. Which size is the best buy? Explain how you know.

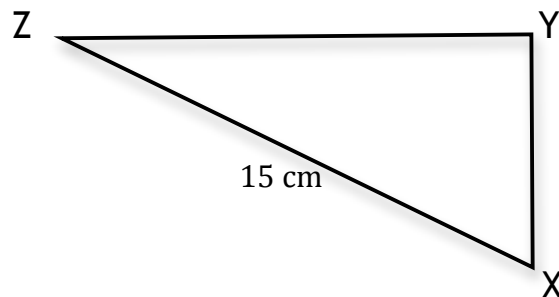
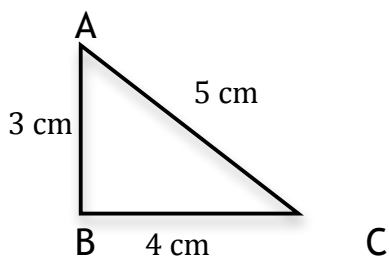
The best buy is _____. I decided this by

5.) Find the value of p .

$$\frac{p}{8} = \frac{18}{48}$$



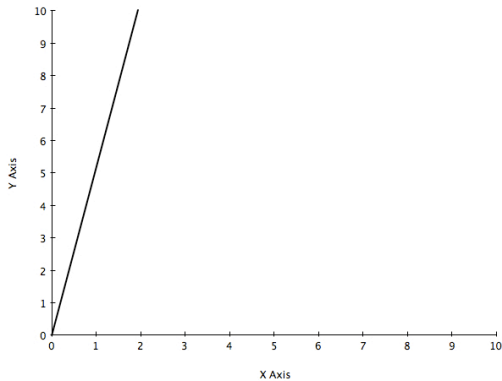
The two figures below are similar. Find the length of side \overline{XY} .



7.) To make the best green paint, mix $\frac{3}{4}$ cup of blue with $\frac{2}{3}$ cup of yellow. To make more of the best green paint, how many cups of blue do you need to mix with $3\frac{2}{3}$ cup of yellow?

8.) For problems a-c below, study the data and then circle YES or NO to state if the data are proportional or not.

a.



Proportional?

YES NO

b.

x	0	5	10
y	10	20	30

Proportional?

YES NO

c. When Moyra was 32 years old, her daughter was 8 years old. How old with Moyra be when her daughter is 12?

Proportional?

YES NO



The distance (d) in meters that an ant can travel is proportional to the amount of time (t) in hours it spends walking. The unit rate for the ant is 18 meters per hour.

a. Write an equation representing the relationship between d and t using the information given.

b. If an ant walks at a constant speed for 10 minutes, how far will it travel?

c. If an ant traveled $22\frac{1}{2}$ meters, how long did it walk?



10.) Ned and Trey both had a sore throat so their mom told them to gargle with warm salt water.

Ned mixed 1 teaspoon salt with 3 cups of water.

Trey mixed $\frac{1}{2}$ teaspoon salt with $1\frac{1}{2}$ cups of water.

Ned tasted Trey's salt water. She said,

"I added more salt, so I expected that mine would be more salty, but they taste the same."

a. Explain why the salt mixtures tasted the same.

b. Which of the following equations relates s , the number of teaspoons of salt, with w , the number of cups of water, for both of these mixtures? Circle all that apply.

$$s = \frac{1}{3}w$$

$$s = 3w$$

$$s = 1\frac{1}{2}w$$

$$w = 3s$$

$$w = \frac{1}{3}s$$

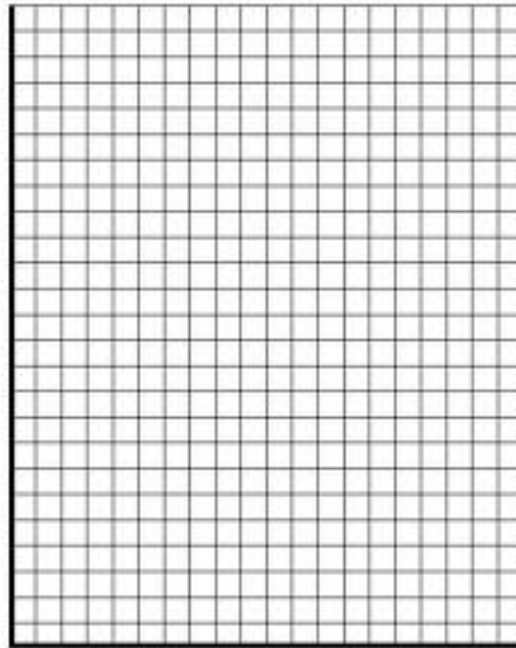
$$w = \frac{1}{2}s$$



11.) Juliana participated in a walk-a-thon to raise money for cancer research. She recorded the total distance she walked at several different points in time, but a few of the entries got smudged and can no longer be read. The times and distances that can still be read are listed in the table below.

a. Assume Juliana walked at a constant speed. Complete the table and plot Juliana's progress in the coordinate plane.

Time in hrs.	Miles Walked
1	
2	6
	12
5	



b. How fast was Juliana walking in miles per hour?

c. Next year Juliana is planning to walk for seven hours. If she walks at the same speed next year, how many miles will she walk?



Key and Rubric

Prob . #	Answer	3	2	1	0
1a	6 carrots, 4 celery	N/A	N/A	Correct answer	Wrong Answer
1b	3:4	N/A	N/A	Correct answer	Wrong answer
2	A (greatest speed) B D C (Least Speed)	$A > B > D > C$	$A > B$ and $D > C$ but $B < C$	Either $A > B$ or $D > C$ but not both	$B > A$ and $C > D$ or any option not listed as 3, 2 or 1
3	22.6 pounds	Student has written $150/56.5 = 60/x$ or some equivalent form $(56.5/150 = x/60)$, or $150/60 = 56.5/x$, etc) and solved correctly.	Student has written $150/56.5 = 60/x$ or some equivalent form $(56.5/150 = x/60)$, or $150/60 = 56.5/x$, etc) but then not correctly solved $x = 22.6$	Student has formulated a proportional relationship, but not correctly, e.g. $150/60 = x/56.5$, or $56.5/60 = 150/x$, etc).	No evidence of formulating a proportion
4a	8 oz- \$.12/oz 18 oz- \$.08/oz 48 oz- \$.05/oz 64 oz- \$.06/oz	All 4 unit rates correct (to nearest cent)	3 correct unit rates	1 or 2 unit rates correct	All 4 incorrect
4b	48 oz bottle- it is the cheapest; it has the lowest unit rate or cost per ounce	N/A	Correct answer and a reasonable explanation	Correct answer- no explanation	Wrong answer
5	$P=3$	N/A	N/A	Correct answer	Incorrect answer
6	$\overline{XY} = 9$	N/A	Correct answer	Correct Ratio (5:15 or 1:3), but solved for wrong side	Incorrect ratio or no ratio.



				(answer of 12) or computation mistake	
7	$4\frac{1}{8}c$ blue	N/A	Correct answer	Correct set up of proportion, equation, or unit rate, but made computation mistake	Incorrect approach
8	a- yes b-no c-no	All 3 correct	2 out of 3 correct	1 out of 3 correct	All incorrect
9a	$d = 18t$ (Meters per hour) or $t = \frac{1}{18}d$ OR $d = .3t$ (Meters per minute) or $t = 3.3d$	N/A	Correct equation	Mixed up variables (e.g., said $t=18d$)	Any other answer or no answer
9b	3 meters	N/A	Correct answer	180 meters (used incorrect units) or computation mistake with correct application of formula	No evidence of correct method and wrong answer
9c	1.25 hours	N/A	Correct answer	Computation mistake but correct approach	No evidence of correct method and wrong answer
10a	The ratios are equivalent as you can multiply 1 by 3 to get three in first ratio and multiply 1/2 by 3 to get 1 1/2 in the second, OR if you double the second ratio (multiply one ratio by 2/2), you will get the first ratio, OR same unit rate.	N/A	Correct explanation	Reasonable attempt to explain equivalent ratios	No evidence of explanation of equivalent ratios/unit rates



10b	$s = \frac{1}{3}w$ $w = 3s$		N/A	Circles two correct equations	One correct and one or no wrong equations circled, OR two correct and 2 or fewer wrong equations circled	Any other option										
11a table	<table border="1"> <thead> <tr> <th>Time in hrs</th> <th>Miles walked</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> </tr> <tr> <td>2</td> <td>6</td> </tr> <tr> <td>4</td> <td>12</td> </tr> <tr> <td>5</td> <td>15</td> </tr> </tbody> </table>	Time in hrs	Miles walked	1	3	2	6	4	12	5	15		N/A	All 3 table entries correct	1 mistake in table	More than 1 mistake in table
Time in hrs	Miles walked															
1	3															
2	6															
4	12															
5	15															
11a graph			N/A	N/A	Graph matches table	Graph does not match students' table entries										
11b	3mph		N/A	N/A	Correct answer	Incorrect answer										
11c	21 miles		N/A	N/A	Correct answer	Incorrect answer										

7

Total Points Possible: 36

