Proportions Test Review

Need to Know: Ratios, Rates, Proportions with Measurement, Solving Proportions using Algebra (cross Products), Scale Drawings, and Similar Figures.

1. Lily is planning to build a model of a new dog park she would like the city to create. She is using a scale where 12 inches represents 14 feet. The plot of land the city has selected is 42 feet long. According to the scale, what is the length of the model Lily is building?
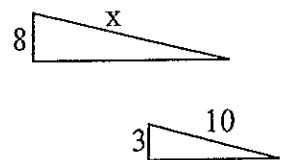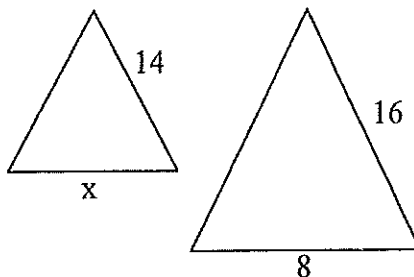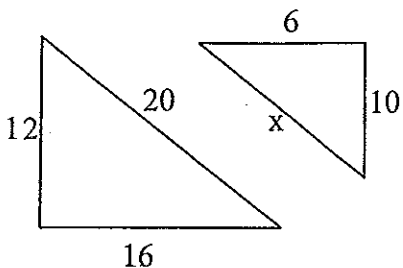
2. Tommy bought 5 pounds of assorted chocolates for $9.65. At this rate, how much would 3 pounds of assorted chocolates cost?

3. A 3-ounce box of strawberry gelatin costs $0.45 and a 6-ounce box costs $0.84. What is the difference in cost per ounce between the larger and smaller boxes?

4. In a certain desert environment there are a lot of small rodents. There also happen to be a lot of snakes that feed on the rodents. The ratio of rodents to rodent eating snakes is 15 to 3. If there are 3,000 snakes in the area, how many rodents are there?

5. Orange Juice is on sale 3 half-gallons for $5.13. At this rate, find the cost of 5 half-gallons of orange juice to the nearest cent.

6-8. Set up a proportion with **LABELS!!!!** ☺

9. If twenty-one pounds of tomatoes cost $84 dollars, how much would 18 pounds cost at the same rate?
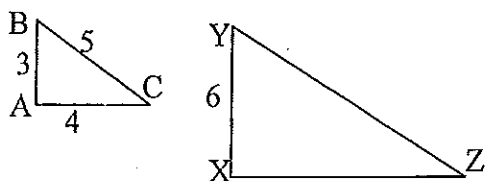
10. A snake can slither about 16.5 feet in 15 minutes.
At this speed, how far can it travel in one hour?

11. The distance between San Rafael and Novato is
20 miles. What would the distance in inches be between
the two towns on a map if the maps scale is:
        0.5 inches = 4 miles.
A 2.5 inches   B 16 inches
C 25 inches   D 160 inches

12. Triangle ABC is similar to triangle XYZ. Find the
perimeter of triangle XYZ.

A   12 inches   B   18 inches
C   24 inches   D   48 inches

13. Velma needs $4\frac{1}{2}$ feet of fabric to make a costume
for a play. How many yards of fabric does she need?
*Solve algebraically (Cross Multiply & Divide)

14. Joey is making punch for a birthday party. If the punch
requires 15 quarts of juice, how many gallons does it require?

15. Convert 5 miles to feet. Then convert to inches.

16. If 12 inches represents 2 feet in an architectural
model. How tall would the actual building be if
the model is 42 inches tall?

17. The gas tank on a minivan holds 18 gallons. How many quarts is this?

18. Marie has saved $54. On Wednesday, she spent $3 of her savings. What ratio
represents the portion of her total savings that she still has left?
[A] 1:9   [B] 17:18   [C] 15:16   [D] 8:9

Need to Know: Ratios, Rates, Proportions with Measurement, Solving Proportions using Algebra (cross Products), Scale Drawings, and Similar Figures.

1. Lily is planning to build a model of a new dog park she would like the city to create. She is using a scale where 12 inches represents 14 feet. The plot of land the city has selected is 42 feet long. According to the scale, what is the length of the model Lily is building?

$$\overset{\times 3}{\frac{12 \text{ in}}{14 \text{ ft}}} = \frac{36 \text{ in}}{42 \text{ ft}}\underset{\times 3}{}$$

2. Tommy bought 5 pounds of assorted chocolates for $9.65. At this rate, how much would 3 pounds of assorted chocolates cost?

$$1.93)\frac{\$9.65}{5 \text{ lb}}\overset{\times 3}{\underset{\times 3}{=}}\frac{\$5.79}{3 \text{ lb}}$$

3. A 3-ounce box of strawberry gelatin costs $0.45 and a 6-ounce box costs $0.84. What is the difference in cost per ounce between the larger and smaller boxes?

$$\boxed{\$0.01}$$

$$\frac{\$.45}{3 \text{ oz}} = \frac{\$.15}{1 \text{ oz}} \qquad \frac{\$.84}{6 \text{ oz}} = \frac{\$.14}{1 \text{ oz}}$$
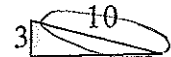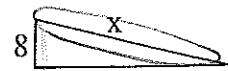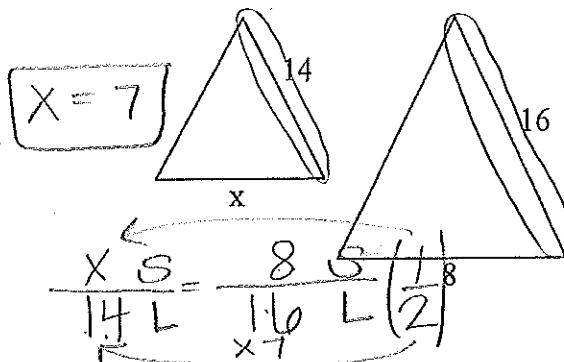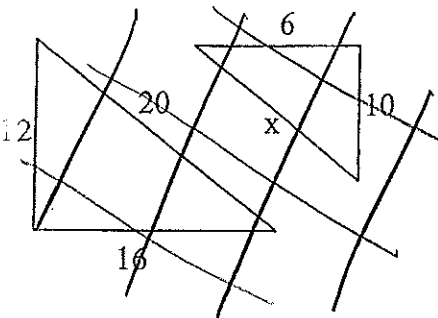
4. In a certain desert environment there are a lot of small rodents. There also happen to be a lot of snakes that feed on the rodents. The ratio of rodents to rodent eating snakes is 15 to 3. If there are 3,000 snakes in the area, how many rodents are there?

$$\frac{15 \text{ r}}{3 \text{ s}} = \frac{15000 \text{ r}}{3000 \text{ s}}$$

5. Orange Juice is on sale 3 half-gallons for $5.13. At this rate, find the cost of 5 half-gallons of orange juice to the nearest cent.

$$1.71)\frac{\$5.13}{3 \text{ hg}}\underset{\times 5}{=}\frac{\$8.55}{5 \text{ hg}}$$

6-8. Set up a proportion with <u>**LABELS!!!!**</u> ☺

$$\boxed{X = 7}$$

$$\frac{X \text{ S}}{14 \text{ L}} = \frac{8 \text{ S}}{16 \text{ L}}\left(\frac{1}{2}\right)_{\times 7}$$

$$\frac{8 \text{ S}}{X \text{ L}} = \frac{3 \text{ S}}{10 \text{ L}}$$

$$80 = 3x$$

$$\frac{80}{3} = \frac{3x}{3}$$

$$\boxed{x = 26.6}$$

9. If twenty-one pounds of tomatoes cost $84 dollars, how much would 18 pounds cost at the same rate?

$$\frac{4}{1})\frac{\$84}{21 \text{ lb}}\underset{\times 18}{=}\frac{\$72}{18 \text{ lb}}$$

10. A snake can slither about 16.5 feet in 15 minutes. At this speed, how far can it travel in one hour?

$$\frac{16.5 \text{ ft}}{15 \text{ min}} \quad \frac{\boxed{66 \text{ ft}}}{60 \text{ min}}$$
×4

11. The distance between San Rafael and Novato is 20 miles. What would the distance in inches be between the two towns on a map if the maps scale is:
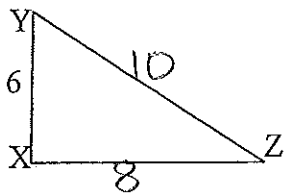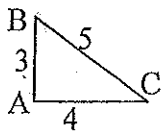
0.5 inches = 4 miles.

(A) 2.5 inches B 16 inches
C 25 inches D 160 inches

*Scale goes on the LEFT

$$\frac{.5 \text{ in}}{4 \text{ mi}} \quad \frac{\boxed{2.5 \text{ in}}}{20 \text{ mi}}$$
×5

12. Triangle ABC is similar to triangle XYZ. Find the perimeter of triangle XYZ.

A 12 inches B 18 inches
(C) 24 inches D 48 inches

$$\frac{3}{4}\frac{S}{L} = \frac{6}{8}\frac{S}{L}$$

$$\frac{3}{5}\frac{S}{L} = \frac{6}{10}\frac{S}{L}$$

$$\begin{array}{r} 10 \\ 8 \\ + 6 \\ \hline \boxed{24} \end{array}$$

*Need your math chart!

13. Velma needs $4\frac{1}{2}$ feet of fabric to make a costume for a play. How many yards of fabric does she need?
*Solve algebraically (Cross Multiply & Divide)

$$\boxed{X = 1.5 \text{ yd}}$$

$$\frac{3 \text{ ft}}{1 \text{ yd}} = \frac{4.5 \text{ ft}}{x \text{ yd}} \quad \frac{3x}{3} = \frac{4.5}{3}$$

$$\boxed{x = 1.5 \text{ yd}}$$

14. Joey is making punch for a birthday party. If the punch requires 15 quarts of juice, how many gallons does it require?

$$\boxed{X = 3.75 \text{ g}}$$

$$\frac{4 \text{ q}}{1 \text{ g}} = \frac{15 \text{ q}}{x \text{ g}} \quad \frac{4x}{4} = \frac{15}{4}$$

$$\boxed{x = 3.75 \text{ g}}$$

15. Convert 5 miles to feet. Then convert to inches.

* 1,760 yd × 3 = 5280 ft/mi

$$\frac{5280 \text{ ft}}{1 \text{ mi}} \quad \frac{\boxed{26,400 \text{ ft}}}{5 \text{ mi}} \quad \frac{1 \text{ ft}}{12 \text{ in}} \quad \frac{26400 \text{ ft}}{\boxed{316,800 \text{ in}}} *$$

16. If 12 inches represents 2 feet in an architectural model. How tall would the actual building be if the model is 42 inches tall?

$$\boxed{X = 7 \text{ ft}}$$

$$\left(\frac{6}{1}\right)\frac{12 \text{ in}}{2 \text{ ft}} = \frac{42 \text{ in}}{\boxed{7 \text{ ft}}}$$
×7

17. The gas tank on a minivan holds 18 gallons. How many quarts is this?

$$\frac{4 \text{ q}}{1 \text{ g}} = \frac{\boxed{72 \text{ q}}}{18 \text{ g}}$$

18. Marie has saved $54. On Wednesday, she spent $3 of her savings. What ratio represents the portion of her total savings that she still has left?

[A] 1:9 ([B] 17:18) [C] 15:16 [D] 8:9

L : T
51 : 54 simplify by 3

Proportion Practice

1. Sabrina can make 20 cookies in 15 minutes. How many cookies can she make in 2 hours?

2. Carter is taking guitar lessons that are $30 per hour. If he paid $120.00 last time, how many hours did he pay for?

3. Jessica can 7.5 miles in 1 hour. How many minutes does it take her to run each half-mile?

4. Bianca's favorite frozen yogurt has 65 calories in 2 oz. How many calories are in 10 oz?

5. A glacier moves about 12 inches every 8 hours. About how far does the glacier move in 72 hours?

6. The ratio of white keys to black keys on a piano is 52 to 36. If a piano maker makes 676 white keys, how many black keys need to be made?

7. Youth soccer teams in Palacios have 22 players and 3 coaches. How many coaches would be needed for 196 players?

8. The scale of a floor plan in 1 inch to 3 feet. If you are making a house 42 feet tall, how many inches would you use on the scale drawing?

9. The height of a wall in a blueprint is 3 inches. The actual wall is 96 inches high. Find the scale of the blueprint.

10. Miss Skidmore is 6 feet tall and her shadow is 4 feet long. Use this ratio to find how tall a tree is if it's shadow is 64 feet long.