

SOL 7.4 and 7.6 Proportions Test: Study Guide

- ✓ A ratio is a comparison of 2 numbers written as a fraction, or with ":", or with the word "to". EX/ $\frac{3}{4}$, 3:4, or 3 to 4
- ✓ Ratios may be part:part or part:whole, so read carefully and make sure you understand what represents a part and what represents a whole

1. There are 12 cats and 15 dogs. Write the ratio of dogs to all animals in simplest form.

- ✓ A proportion is made up of 2 equivalent fractions or ratios.
- ✓ Cross multiply to see if the ratios form a proportion.
- ✓ Cross multiply then divide to find a missing term in a proportion and to solve many practical problems such as scale, measurement or currency conversions, similar figures and indirect measurement.

2. Do the ratios $\frac{6}{1}$ and $\frac{15}{2.5}$ form a proportion? Show your work!

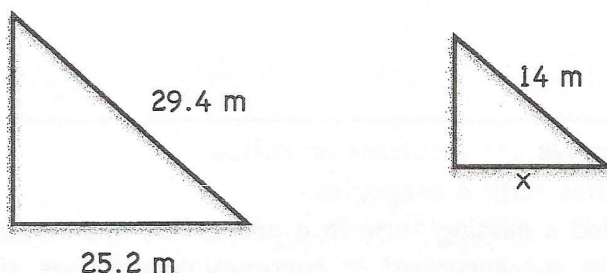
3. Solve for z. $\frac{4}{5} = \frac{20}{z}$

4. Suppose you buy 3 pounds of bananas for \$0.99. How many pounds can you buy for \$4.95?

5. The scale on a map shows $\frac{1}{2}$ inch for every 20 miles. William drives 62.5 miles from Harrisonburg to work in Charlottesville everyday. What measure will represent this distance on the map? (Round to tenths place)

6. A flagpole measuring 20 feet tall casts a shadow that is 6 feet long. A man standing next to the flagpole is 6 feet, 6 inches tall. How long will his shadow be? (Hint* Draw a picture!)

7. Find the value of x in the similar figures below.



8. There are about 18.95 liters in 5 gallons. Circle all the proportions that could be used to find how many liters there are in 8 gallons.

a. $\frac{5 \text{ gal}}{18.95 \text{ l}} = \frac{8 \text{ gal}}{x}$

b. $\frac{8 \text{ gal}}{5 \text{ gal}} = \frac{x}{18.95 \text{ l}}$

c. $\frac{x}{8 \text{ gal}} = \frac{18.95 \text{ l}}{5 \text{ gal}}$

d. $\frac{x}{5 \text{ gal}} = \frac{8 \text{ gal}}{18.95 \text{ l}}$

- ✓ The percent proportion uses a percent in fraction form as one ratio in the proportion.
- ✓ The percent side represents a **part** "out of 100", while the other side represents a **part** "out of a whole".
- ✓ Use the percent proportion to solve many practical problems including tax, tip and discount.

9. There are 128 vehicles in a parking lot. 45 of the vehicles are trucks. What percent of the vehicles are trucks? (Round to tenths place)

10. 95% of the students in Ms D's class passed the math test. If she has 70 students, how many passed the test? (Round to the nearest whole #).

11. Caleb is going to spend 15% of the money in his savings account to buy a new bike. If the bike costs \$129, how much does Caleb have in his savings account?

- ✓ IMPORTANT!! Pay attention to tax, tip and discount questions. If the question asks for the **amount** of the tax, tip or discount, solve with the percent proportion and stop there.
- ✓ Remember, discount is NOT the same as the sale price. Discount is the amount of money that is saved by not buying an item at full price.
- ✓ If the question asks for the **total** amount owed, remember AT & T (add tax and tip).
- ✓ If the question asks for the new price or sale price, subtract the amount of the discount from the original price.

12. Jennifer and Ava's meals came to a total of \$56.00. They are going to leave a 15% tip. Calculate the total amount they are spending for dinner.

13. Faith bought some new clothes for her trip. The original cost was \$67.00 but they are on sale for 35% off. How much will she save by buying the clothes on sale?

14. Harrisonburg meals tax is 10%. How much tax will Khayla pay on her \$6.95 meal at McDonalds?