

Examples:

- a. What percent of 300 is 75?

- b. At a constant rate of 80 mph, how long would it take to travel 440 miles?

- c. If $4x + 36 = 76$, how much does $x + 9$ equal?

- d. The ratio of a rectangular floor's width to length is 3:4. The length of the floor is 16 feet. Find the area of the floor in square feet.

- e. It takes 20 sacks of flour to make 1 batch of Krispy Kreme donuts. Each sack contains 32 cups of flour. If one bag is enough to make 6 dozen donuts, how much flour is used per donut?

- f. A pattern shows a circle with area 25π square inches. The scale factor for the pattern is that 1 inch on the pattern = 8 inches on the fabric. Find the area in square inches of fabric that is needed to make the circle on the fabric.

There are many ways to do each of these problems. HOWEVER, for this worksheet, I want you to **set up a proportion** that will answer or assist you in answering the question. **Then solve** the problem. I want you to see that each of these can be interpreted and solved as a proportion problem.

- Mary gets a token every time she completes her homework and turns it in on time. When she gets 5 tokens, she can trade them in to her grandmother for 75 cents. How many times would she need to do her homework and turn it in on time in order to earn \$9.00?

Solve:

Sentence:

- In a bag of red and green marbles, there are 2 green marbles for every 8 red marbles.

- What is the ratio of green marbles: red marbles?
- What fraction of the marbles are red?
- If there are 80 green marbles in the bag, how many red marbles are in the bag?

Solve:

Sentence:

- Write a proportion that would represent this problem and then solve it as a proportion problem:
“What percent of 228 is 57?”

Solve:

Sentence:

- Write a proportion that would represent this problem and then solve it as a proportion problem:
“Six boxes are 20% of _____.”

Solve:

Sentence:

5. The ratio of a rectangular floor's width to length is 2 to 3. The length of the floor is 12 meters. Find the perimeter of the floor in meters.

Solve:

Sentence:

6. The weight of a sack of grain together and another third of this weight equals 24 pounds in all. What is the weight of just one sack of grain in pounds?

Solve:

Sentence:

7. Classified ads in a newspaper cost \$1.50 for every 25 words. How many words must be deleted from the text of an 86-word ad to make the ad cost \$4.50?

Solve:

Sentence:

8. A box of laundry detergent contains 40 cups of powder. If one box is enough to do 32 loads of laundry, how much detergent is used per load?

Solve:

Sentence:

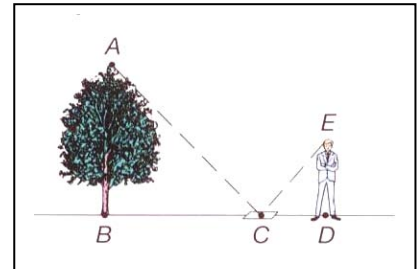
9. Michael earns a commission of \$1 for every \$4 he sells. If his total sales are \$300, what will his commission be?

Solve:

Sentence:

10. Height of an object can also be determined by using a mirror placed on level ground. The person walks away from the mirror until the person can see the top of the object when looking in the mirror.

The physics principle involved is that “angle in = angle out”, meaning the angle at which the item being measured comes in to the mirror equals the angle at which it leaves the mirror and goes to the observer. Consider the diagram at the right.

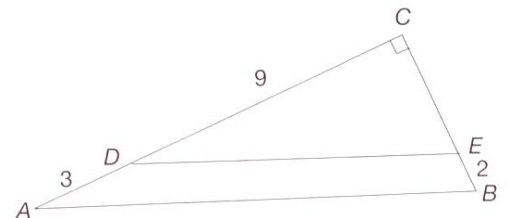


(a) Name two similar triangles in the diagram.

(b) How do you know that they are similar?

(c) Find the height of the tree if a person 1.5 meters tall sees the top of the tree when the mirror is 18 meters from the base of the tree and the person is standing another 1 meter from the mirror.

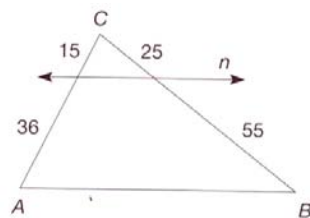
11. In $\triangle ABC$, segment DE is parallel to segment AB. Find the length of segment AB.



12. For the following two diagrams, determine if the transversal through the triangle is parallel to one of the sides of the triangle.

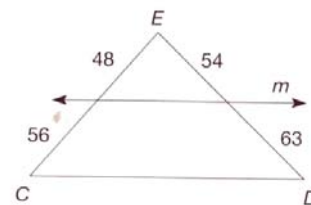
(a) Is line n parallel to segment AB?

Show your computation and conclusion.



(b) Is line m parallel to CD?

Show your computation and conclusion.



1. A region of land is surveyed that corresponds to a flat, circular area of 4π sq. in. on a map. The **map scale for distance** is 1 inch = 60 miles. Find the area of in square miles of the land that was surveyed.

Solve:

Sentence:

2. 54% of the registered voters in a district actually voted in a recent election. If the district has 350 registered voters, how many of them voted?

Solve:

Sentence:

3. 3% of $(A + G)$ is 12. What does G equal if $A = 135$?

Solve:

Sentence:

4. The edge around a metal frame has a perimeter of 42 inches. The frame is shaped like an equilateral triangle. What is the length of each side of the metal frame?

Solve:

Sentence:

5. The radius of circle A forms a ratio of 1 to 3 with the radius of circle B.
(a) What ratio does A's circumference form with B's circumference?

Solve:

Sentence:

- (b) Is the length of the radius of a circle proportional to the circumference of the circle?

6. ADR granola bars are packed 6 per box and each bar supplied 2 grams of protein. How many such boxes would supply 36 grams of protein?

Solve:

Sentence:

7. Alexa has asked one of her friends to feed her 3 dogs while she is away on vacation. Each dog eats $1\frac{1}{2}$ bags of dog food per week. How many bags of food should Alexa leave for her dogs to eat if she will be gone 4 weeks?

Solve:

Sentence:

8. A miller keeps 10% of the flour she grinds for customers as a service fee. If she gives a customer $(W+2)$ tons, how much flour was ground in all for that order?

Solve:

Sentence:

9. A distance of 700 miles on the ground is represented by 3.5 inches on a certain map. What distance on the ground is represented by 1 inch on the map?

Solve:

Sentence:

10. If a car has traveled 150 miles in 3 hours and continues at the same rate, how far will it travel in the next 2 hours.

Solve:

Sentence:

11. Joni biked 36 miles in 2 days and her friend Marcus biked 24 miles in that same amount of time. For every 3 miles that Joni traveled, how many miles did Marcus travel?

Solve:

Sentence:

12. A store promotion offers to customers a refund of 5% of the amount they spend. If a person spends \$80, what will be the amount of the refund?

Solve:

Sentence:

13. If $5 = 2b + 3$, what number will equal $12b + 18$.

Solve:

Sentence:

14. If I drive my car and it gets 315 miles and use 15 gallons of gas to do it, how many miles per gallon did the car get?

Solve:

Sentence:

15. Remember that parallel lines intercept proportional segments on all transversals. In the following figure, l_1 is parallel to l_2 is parallel to l_3 is parallel to l_4 . Complete the following proportion statements.

(a) $\frac{AB}{BC} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

(b) $\frac{FG}{GH} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

(c) $\frac{IJ}{JK} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

