

**problem
solving**

Choose an appropriate problem-solving strategy to solve this problem. It takes Orlando about 5 minutes to walk around the block. He takes about 600 steps from start to finish. Orlando travels about 15 feet in 6 steps. About how many feet does Orlando travel when he walks around the block? Explain how you arrived at your answer.

1 – Unit cost

If sixteen health snacks cost \$4.00, what was the price for each health snack?

2 – Rate

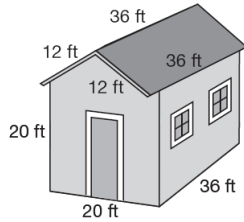
Mia can read 12 pages in 20 minutes. At that rate, how many pages can she read in 30 minutes?

3 – Rate

If Mrs. Ikeda's car averages 24 miles per gallon, then about how many gallons of gas will she use on a trip of 300 miles?

4 – Scale [What is the length of the model house in inches?]

- c. We can make **scale models** of 3-dimensional figures. Model trains and action figures are examples of scale models. Using cardboard and glue or tape, make a scale model of the barn below. Use the scale 1 in. = 8 ft. Note that the front and the back of the barn are pentagons.



5 – Circumference

George Ferris designed a Ferris Wheel for the 1893 World Columbian exposition in Chicago. The wheel was 75 meters in diameter. Calculate the circumference of the wheel to the nearest meter.

6 – Probability

A set of alphabet cards includes one card each for each letter of the alphabet. If one card is drawn from the set of cards, what is the probability of drawing a vowel, including y ?

7 – Fractional part

On Friday, one-third of the 27 students purchased lunch in the school cafeteria. How many students purchased lunch on Friday?

8 – Fractional part

Three-eighths of the townspeople voted. If 120 of the townspeople voted, how many people live in the town?

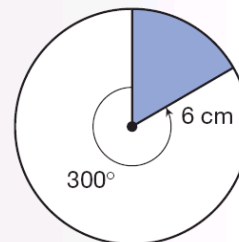
9 – Unit conversion

A certain double feature at a theatre is 270 minutes long. Convert 270 minutes to hours.

10 – Circles

Example 3

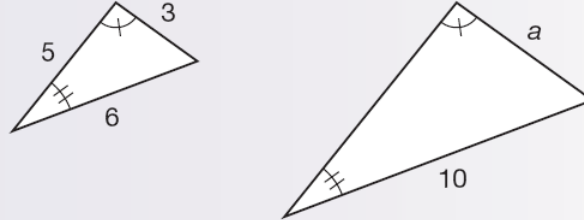
Find the area of the shaded sector of this circle.



11 – Similarity

Example 1

Estimate the length a . Then use a proportion to find a .

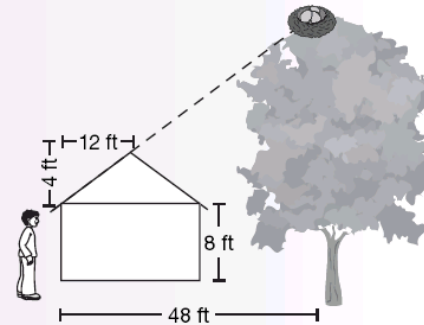


12 – Similarity

Example 4

Robert noticed a bird's nest in line with the slope of his roof. He knew that the slope of the roof was 4 in 12. He also knew that the edge of the roof was 8 feet high.

He measured 48 feet from the edge of the roof to a spot directly under the nest. Then he calculated the height of the nest. How high was the nest?



13 – 3-Row

A bus company has small and large buses in the ratio of 2 to 7. If the company has 84 large buses, how many buses does it have?

14 – PPW

Thirty percent of the students ride the bus. If 210 do not ride the bus, how many students are there in all?

15 – Percents

Jamaal correctly answered 80% of the 25 questions. How many questions did he miss?

16 – OCN

Buying the shoes on sale, Nathan paid \$45.60, which was 40% off the regular price. What was the regular price of the shoes?

17 – OCN

The soccer league had 30% more participants this year than last year. If there are 1170 participants this year, how many participated last year?

18 - Compare

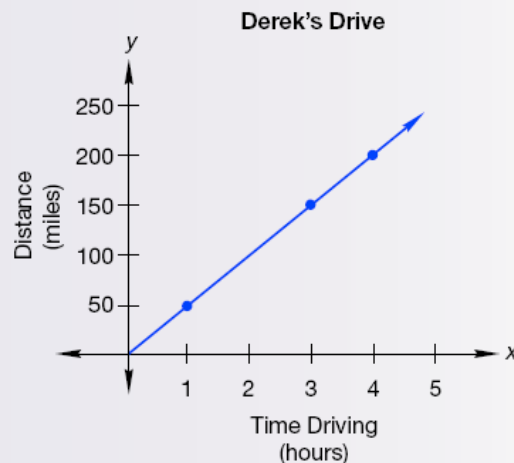
Fifty percent more dentists recommend Brand X than recommend Brand Y. If 480 dentists made recommendations, how many recommended Brand Y?

19 – Multi-step

The cost of the meal Zane ordered was \$18.25. As a senior citizen, he received a 20% discount. The tax rate for the meal was 8%. He also provided a 15% tip for his waitress. What did Zane spend for his meal?

Example 2

Derek drives the highway at a steady rate, noting the time and distance he has traveled. This graph describes the distance Derek travels when driving at a constant rate of 50 mph. Find the average rate of change in miles per hour Derek drives over these three intervals: zero and 1 hour, 1 hour and 3 hours, and 3 hours and 4 hours.



Example 1

Which of the following is an example of direct variation? (The variables are underlined.)

- A A taxi company charges three dollars to start the ride plus two dollars per mile.
- B The area of a square is the square of the length of its side.
- C The perimeter of a square is four times the length of its side.

