

## PROPORTIONS, SIMILAR FIGURES, SCALE DRAWINGS STUDY GUIDE

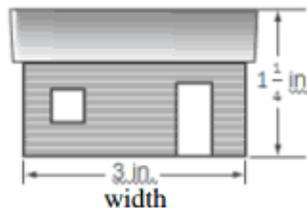
Write a proportion and solve for each of these problems on a separate sheet of paper.

- On a map,  $\frac{1}{4}$  inch represents 8 miles. How many miles would 2 inches on the map represent?
  - 8 miles
  - 16 miles
  - 32 miles
  - 64 miles
- On a blueprint for a house, the front of the house is shown as 12 inches wide and 14 inches tall. If the front of the actual house is 30 ft. wide, how tall is the house?
  - 25 ft.
  - 32 ft.
  - 35 ft.
  - 44 ft.
- The angry bird machine produces 720 angry birds in 3 hours. How many angry birds will it produce in 13 hours?
  - 9360 angry birds
  - 3120 angry birds
  - 2200 angry birds
  - 240 angry birds
- Patty won 7 games for every 4 games she lost. Altogether she played 45 basketball games. How many did she win?
  - About 14 games
  - About 20 games
  - About 28 games
  - About 38 games

5.

An architect created the scale drawing below showing a wall of a child's playhouse. If the scale of the drawing is 1 in = 6 ft, what is the actual width of the playhouse?

- 18 ft
- 12 ft
- 6 ft
- 24 ft



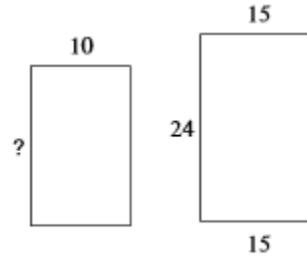
- On a scale drawing, the scale is  $\frac{1}{4}$  inch = 1 foot. What are the dimensions on the scale drawing for a room that is 15 feet by 16 feet?
  - $3\frac{3}{4}$  in. by 4 in.
  - $5\frac{1}{4}$  in. by  $3\frac{1}{4}$  in.
  - $4\frac{3}{4}$  in. by  $2\frac{1}{3}$  in.
  - 8 in. by  $8\frac{1}{2}$  in.
- The scale on a map is 1 inch = 50 miles. The actual distance between two cities is 475 miles. What is the distance between the cities on the map?
  - 4.75 in
  - 8.50 in
  - 9 in
  - 9.5 in
- A map has a scale of 0.5 inches = 10 miles. The distance between two cities is 50 miles. What is the distance between these cities on the map?
  - 2.5 inches
  - 5 inches
  - 10 inches
  - 15 inches
- A model of a dinosaur skeleton was made using a scale factor of 1 : 12 in a museum. If the size of the tail of the dinosaur in the model is 6 in., then find the actual length of its tail.
  - 60 in.
  - 72 in.
  - 62 in.
  - 18 in.

10. A model of a track (for running) is constructed where 1 cm is the measure of the model, and 5 km is the actual track. Which equation below represents the relationship between the actual length (a), in km, and the model length (m), in cm?

- $m = \frac{1}{5}a$
- $a = \frac{1}{5}m$
- $m = 5a$
- $a = \frac{1}{2}m$

11. Brett made a scale drawing of a rectangular room in his house. The actual length of the room is  $12\frac{4}{5}$  ft. The scale used to make the drawing was  $\frac{1}{4}$  in. = 1 ft. What is the length, in inches, of the room on the drawing?
12. A kitchen is shaped like a rectangle with dimensions of  $11\frac{1}{2}$  ft by  $9\frac{1}{2}$  ft. The floor of the room is made of square tiles with a side length of  $\frac{1}{2}$  ft. What is the number of tiles that will cover the kitchen floor?
13. The scale on a set of blueprints of a house is 1 in = 3 ft. On the blueprint, one of the bedrooms measures 3.75 in. wide and 4.5 in. long. What is the perimeter of the actual bedroom?
- A. 16.5 ft  
B. 24.75 ft.  
C. 49.5 ft.  
D. 50.63 ft.
14. The scale for the blueprints for a house is 1 in. = 7 ft. The dimensions of a room on the blueprints are 2.5 in. by 3 in. What is the area of the actual room?
- A. 52.5 square feet  
B. 95 square feet  
C. 315 square feet  
D. 367.5 square feet
15. Chad built a scale model of a statue. He built the model 7 inches tall to represent the actual height of 15 feet. Which equation below represents the relationship between the actual height (a), in feet, and the height of the model (m), in inches?
- A  $a = \frac{7}{15}m$                       C  $a = 0.75m$   
B  $m = \frac{7}{15}a$                       D  $m = 0.75a$
16. A statue that is 12 ft tall casts a shadow that is 15 ft long. Find the length of the shadow that a 8 ft cardboard box casts.
17. Find the distance between Riverside and Milton if they are 12 cm apart on a map with a scale of 4 cm : 21 km.
18. A telephone booth that is 8 ft tall casts a shadow that is 4 ft long. Find the height of a lawn ornament that casts a 2 ft shadow.

19. These two rectangles are similar. Find the length of x.



20. What is the scale factor from the bigger rectangle to the smaller rectangle above?
- A.  $\frac{2}{3}$   
B.  $\frac{3}{2}$   
C.  $\frac{5}{8}$   
D.  $\frac{8}{5}$
21. What is the scale factor if we go from the smaller rectangle to the bigger rectangle above instead?
- A.  $\frac{2}{3}$   
B.  $\frac{3}{2}$   
C.  $\frac{5}{8}$   
D.  $\frac{8}{5}$
22. There are two triangles that are similar to each other. One triangle has a base of 3 inches and a height of 4 inches. The second triangle has a base of 12 inches, find the height (h). Draw a picture, set up a proportion, and solve!
23. What is the scale factor from the smaller triangle to the bigger triangle?
24. Area of the first triangle = \_\_\_\_\_  
Area of the second triangle = \_\_\_\_\_
25. The area of the larger rectangle is \_\_\_\_\_ times bigger than the area of the smaller rectangle, which is....
- A. The scale factor multiplied by 2  
B. The scale factor divided by 2  
C. The scale factor squared