Unit 1: Scale Drawings

ADVANCED

Name: _____ Date: _____

Solve each problem. Give exact short answers: whole numbers, fractions like 3/4, ratios like 2:3, or units where asked. Show scale-factor reasoning; remember area scales by the square of the length scale factor.

1. A scaled copy is made using scale factor 5/3. A segment in the original is 21 cm long. How long is the corresponding segment in the copy, in cm?

Answer: _____

2. Rectangle P is a scaled copy of rectangle Q. A side of Q that is 48 mm corresponds to a side of P that is 30 mm. What is the scale factor from Q to P, as a fraction in lowest terms?

Answer: _____

3. Triangle B is a scaled copy of triangle A with scale factor 3/4. The area of triangle A is 96 cm^2. What is the area of triangle B, in cm^2?

Answer: _____

4. A scale drawing uses the scale 1 cm to 2.5 m. On the drawing, a wall is 14.4 cm long. What is the actual length of the wall, in meters?

Answer: _____

5. A map has scale 3 cm to 20 km. Two towns are 75 km apart in reality. How far apart are they on the map, in cm?

Answer: _____

6. A polygon has area 40 cm^2. A scaled copy of it has area 250 cm^2. What is the scale factor (length) from the original to the copy, as a fraction in lowest terms?

Answer: _____

7. A scale drawing uses scale 2 cm to 15 m. A rectangular field measures 6 cm by 8 cm on the drawing. What is the actual area of the field, in square meters?

Answer: _____

8. Figure Y is a scaled copy of figure X using scale factor 5/2. Then figure Z is a scaled copy of figure Y using scale factor 4/15. What single scale factor takes X to Z, as a fraction in lowest terms?

Answer: _____

9. On a floor plan with scale 1 cm to 1.5 m, a room appears as a rectangle 8 cm by 5 cm. How many square meters of actual floor does this room have?

Answer: _____

10. A scaled copy of a triangle has each side multiplied by 7/4. Its perimeter is 105 cm. What was the perimeter of the original triangle, in cm?

Answer: _____

11. A scale model of a building uses scale 1 cm to 40 cm. The real building is 26 m tall. How tall is the model, in cm? (1 m = 100 cm.)

Answer: _____

12. Two scaled copies of the same figure have areas 27 cm^2 and 147 cm^2. What is the ratio of their length scale factors (smaller to larger), written in lowest terms as a ratio a:b?

Answer: _____