

Unit 2: Scale Drawings, Similarity, and Slope

ADVANCED • SET 2

Name: _____ Date: _____

Show your work where needed. Write each answer as an exact value: a whole number, a fraction in lowest terms (like $\frac{3}{4}$), a coordinate pair (like $(3, -4)$), a ratio (like $2:3$), or "yes"/"no".

1. A scaled copy of a polygon is made using scale factor $\frac{5}{3}$. One side of the original measures 8.4 cm. How long is the corresponding side in the copy, in centimeters?

Answer: _____

3. On a scale drawing, 4 cm represents 18 real meters. A rectangular field is drawn 7 cm by 10 cm. What is the actual area of the field, in square meters?

Answer: _____

5. Point $P(-6, 9)$ is dilated with center the origin and scale factor $\frac{2}{3}$. What are the coordinates of its image? Answer as (x, y) .

Answer: _____

7. A dilation has center $C(2, 3)$ and scale factor 4. Point $Q(5, 1)$ is dilated. What are the coordinates of the image Q' ? Answer as (x, y) .

Answer: _____

9. A line passes through the points $(-4, -7)$ and $(6, 8)$. What is the slope of the line? Give a fraction in lowest terms.

Answer: _____

2. Triangle A has sides 12, 15, and 21. Triangle B is a scaled copy of Triangle A, and the side in B corresponding to the 15 measures 9. What is the perimeter of Triangle B?

Answer: _____

4. A photo is enlarged by scale factor $\frac{3}{2}$. The enlargement is then enlarged again by scale factor $\frac{4}{5}$. A feature that was 20 mm in the original photo is now how many mm?

Answer: _____

6. A dilation with center the origin maps the point $(10, -15)$ to $(4, -6)$. What is the scale factor of the dilation? Give a fraction in lowest terms.

Answer: _____

8. Two similar triangles have areas in the ratio $9:49$. The longest side of the smaller triangle is 15. What is the length of the longest side of the larger triangle?

Answer: _____

10. A line has slope $\frac{5}{4}$ and passes through the point $(8, 3)$. It also passes through the point $(16, k)$. What is the value of k ?

Answer: _____

11. On a line through the origin, similar right triangles are formed. One has legs (horizontal 6, vertical 15). Another triangle on the same line has a horizontal leg of 14. What is its vertical leg length?

Answer: _____

12. A line passes through (2, -1) and (7, 14). Written in the form $y = mx + b$, what is the value of b (the y -intercept)?

Answer: _____