

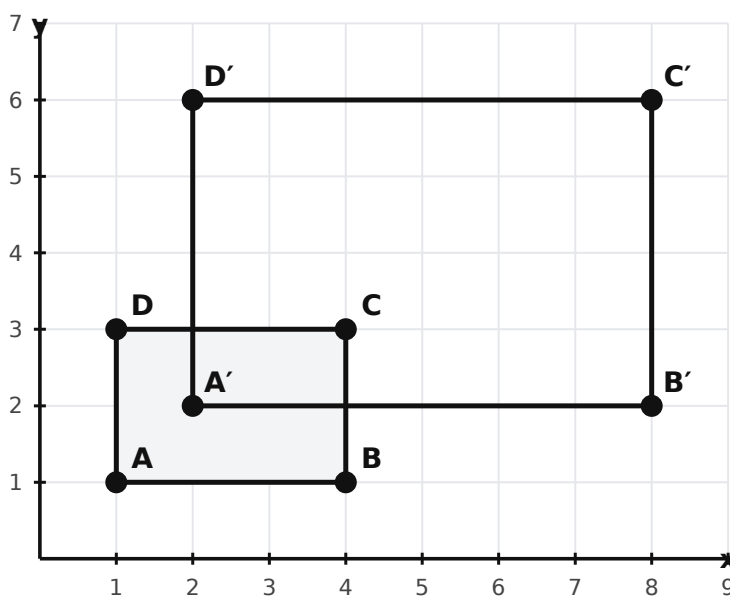
Geometry - Dilations and Similarity - Test Answer Key

Common Core G-SRT.A.1, G-SRT.A.2, G-SRT.A.3 · maths-pdf.fr/en/

Use this answer key and scoring guide for the dilations test. Each solution shows the full work, and the scoring note tells how the points are split between method and final answer. Partial credit is listed so that grading stays consistent from one paper to the next.

Geometry · Common Core State Standards: **G-SRT.A.1, G-SRT.A.2, G-SRT.A.3**

Question 1 - Dilate a rectangle [2 pts]



Rectangle and its image.

$$A'(2,2), B'(8,2), C'(8,6), D'(2,6)$$

Original area $3 \cdot 2 = 6$, image area $6 \cdot 4 = 24$, which is $2^2 = 4$ times as much.

Areas 6 and 24

Scoring: 1 point for the vertices, 1 point for the areas.

Question 2 - Center not at the origin [2 pts]

$$(2 + 1.5 \cdot 4, 2 + 1.5 \cdot 0) = (8, 2).$$

$$(2+3\cdot 4,2)=(14,2).$$

(8, 2) and (14, 2)

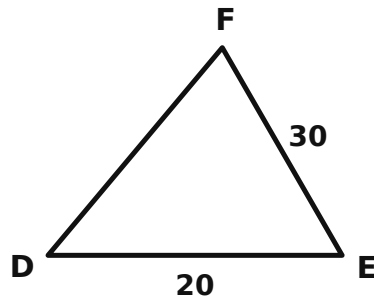
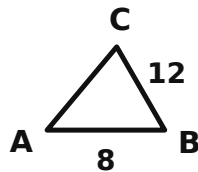
Scoring: 1 point for each image.

Question 3 - True or false [3 pts]

- a. True.
- b. False: the image line is parallel to the original line.
- c. True: area is multiplied by $3^2=9$.

Scoring: 1 point per part.

Question 4 - Similar triangles [2 pts]



$$EF = 30.$$

$$\text{Scale factor: } \frac{20}{8} = 2.5.$$

$$EF = 2.5 \cdot 12 = 30.$$

$$\mathbf{k = 2.5; EF = 30}$$

Scoring: 1 point each.

Question 5 - AA [2 pts]

$$\text{Third angle of PQR: } 180^\circ - 35^\circ - 80^\circ = 65^\circ.$$

$$\text{XYZ has } 65^\circ, 80^\circ \text{ and third angle } 180^\circ - 145^\circ = 35^\circ.$$

Both triangles have angles 35° , 65° , 80° , so they are similar by AA.

Scoring: 1 point for the third angles, 1 point for AA.

Question 6 - Proportions with x [3 pts]

Scale factor from DEF to ABC: $\frac{9}{6} = 1.5$.

$x + 2 = 1.5 \cdot 8 = 12$, so $x = 10$.

BC = 12, so the perimeter is $9 + 12 + 15 = 36$.

k = 1.5; x = 10; perimeter 36

Scoring: 1 point for the scale factor, 1 point for x, 1 point for the perimeter.

Question 7 - Area and perimeter [2 pts]

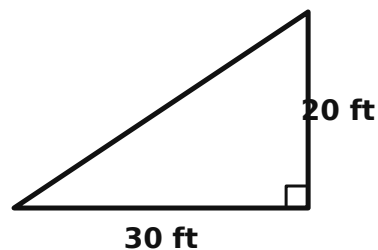
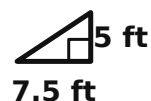
Perimeter: $36 \cdot \frac{5}{4} = 45$.

Area: $40 \cdot \frac{25}{16} = 62.5$.

Perimeter 45; area 62.5

Scoring: 1 point each.

Question 8 - Flagpole shadow [2 pts]



The flagpole is 20 ft tall.

$\frac{h}{30} = \frac{5}{7.5}$, so $h = 30 \cdot \frac{2}{3} = 20$.

20 feet

Scoring: 1 point for the proportion, 1 point for the height.

Question 9 - Scale model [2 pts]

$120 \div 40 = 3$ feet long and $30 \div 40 = 0.75$ feet tall.

3 ft by 0.75 ft

Scoring: 1 point each.

Total
20 points