

Geometry - Dilations and Similarity - Test

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

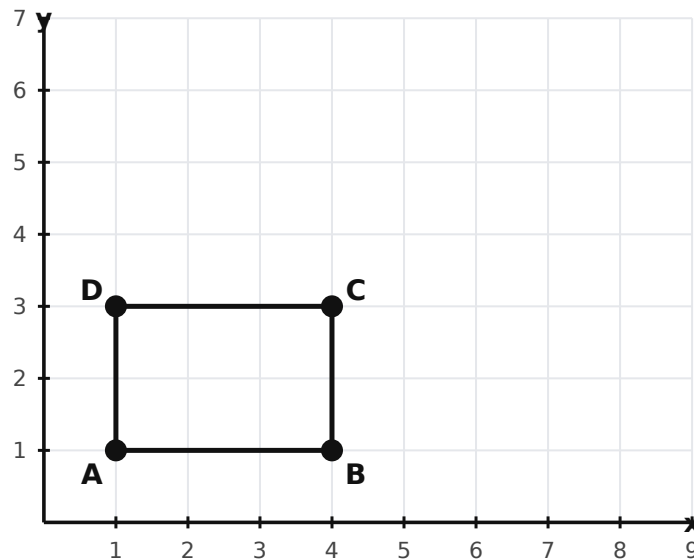
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks dilations on the coordinate plane and similar figures. It has 9 questions worth 20 points in total. Show every step of the work, label diagrams, and include units where they apply. Calculators are allowed unless the teacher says otherwise.

About this test

- Grade: Geometry
- Chapter: Dilations and Similarity
- Standards: G-SRT.A.1, G-SRT.A.2, G-SRT.A.3
- Time: 45 minutes
- Total: 20 points

Question 1 - Dilate a rectangle [2 pts]



Rectangle ABCD.

Dilate rectangle ABCD with center at the origin and scale factor 2. Give the image vertices and compare the areas.

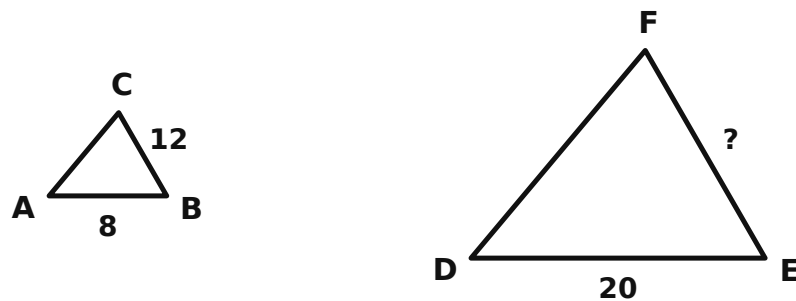
Question 2 - Center not at the origin [2 pts]

Dilate the point $(6, 2)$ with center $(2, 2)$ and scale factor $3/2$. Then dilate $(6, 2)$ with center $(2, 2)$ and scale factor 3.

Question 3 - True or false [3 pts]

- a. A dilation always preserves angle measure. (1 point)
- b. A dilation with scale factor 4 turns a line not through the center into a perpendicular line. (1 point)
- c. A dilation with scale factor 3 multiplies area by 9. (1 point)

Question 4 - Similar triangles [2 pts]



Triangles ABC and DEF.

The triangles are similar. Find the scale factor from ABC to DEF and the length of EF.

Question 5 - AA [2 pts]

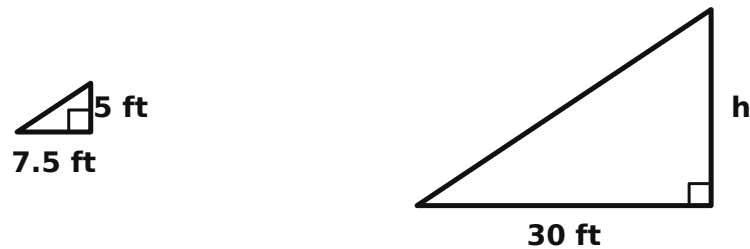
Triangle PQR has angles of 35° and 80° . Triangle XYZ has angles of 65° and 80° . Are they similar? Show the work.

Question 6 - Proportions with x [3 pts]

Triangle ABC is similar to triangle DEF with $AB = 9$, $BC = x + 2$, $DE = 6$ and $EF = 8$. Find x , then find the scale factor from DEF to ABC, then find the perimeter of ABC if $AC = 15$.

Question 7 - Area and perimeter [2 pts]

Two similar polygons have a scale factor of 4 : 5 (small to large). The small polygon has perimeter 36 and area 40. Find the perimeter and the area of the large polygon.

Question 8 - Flagpole shadow [2 pts]

Student and flagpole.

A 5-foot-tall student casts a 7.5-foot shadow. A flagpole casts a 30-foot shadow at the same time. Find the height of the flagpole.

Question 9 - Scale model [2 pts]

A scale model of a bridge uses the scale 1 : 40. The real bridge is 120 feet long and 30 feet tall. Find the model's length and height in feet.