

Geometry - Similar Triangle Theorems - Test

Common Core G-SRT.B.4, G-SRT.B.5 · maths-pdf.fr/en/

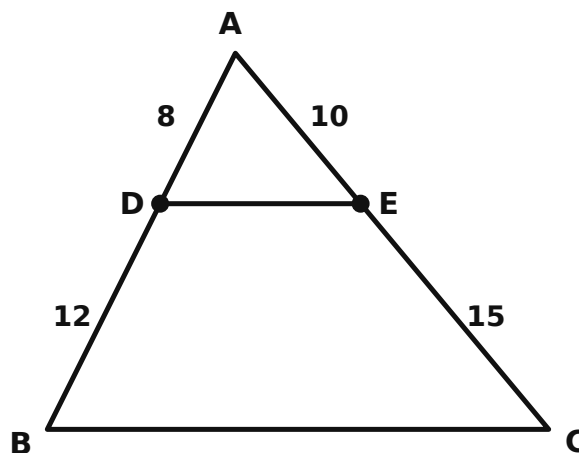
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks proportional segments, similarity tests and right triangle relationships. 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: Similar Triangle Theorems
- Standards: G-SRT.B.4, G-SRT.B.5
- Time: 45 minutes
- Total: 20 points

Question 1 - Triangle proportionality [2 pts]



DE is parallel to BC.

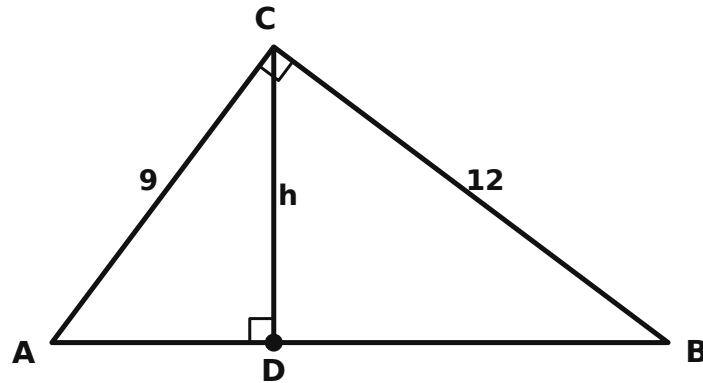
DE is parallel to BC. $AD = x$, $DB = 12$, $AE = 10$ and $EC = 15$. Find x and AB .

Question 2 - Is it parallel? [2 pts]

In triangle ABC, D is on AB and E is on AC with $AD = 6$, $DB = 8$, $AE = 9$ and $EC = 12$. Is DE

parallel to BC? Explain.

Question 3 - Altitude to the hypotenuse [3 pts]



Right triangle with legs 9 and 12.

- Find the hypotenuse. (1 point)
- Find the segments AD and DB of the hypotenuse. (1 point)
- Find the altitude h. (1 point)

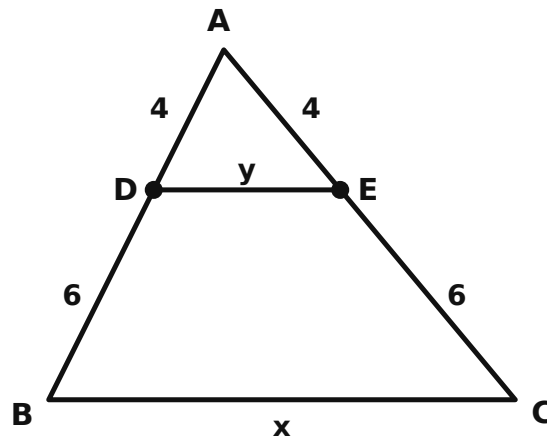
Question 4 - SSS similarity [2 pts]

Triangle ABC has sides 9, 12 and 15. Triangle DEF has sides 6, 8 and 10. Are they similar? If so, name the test and the scale factor from DEF to ABC.

Question 5 - Solve for x [2 pts]

DE is parallel to BC. $AD = 2x$, $DB = x + 6$, $AE = 9$ and $EC = 6$. Find x and AD.

Question 6 - Prove similar [3 pts]



DE is parallel to BC.

DE is parallel to BC. Explain why triangle ADE is similar to triangle ABC. Then find DE if $AD = 4$, $AB = 10$ and $BC = 15$.

Question 7 - Geometric mean [2 pts]

Find the geometric mean of 6 and 24. Then find the length of the altitude to the hypotenuse if it splits the hypotenuse into segments of 6 and 24.

Question 8 - Mirror method [2 pts]

A mirror is on the ground 10 feet from a student whose eye is 5 feet high. The mirror is 40 feet from a tower. Find the height of the tower.

Question 9 - Similar areas [2 pts]

Two similar triangles have corresponding sides of 4 and 10. The larger has area 125. Find the area of the smaller triangle.