

Geometry - Congruent Triangles and Rigid Motions - Test

Common Core G-CO.B.7, G-CO.B.8 · maths-pdf.fr/en/

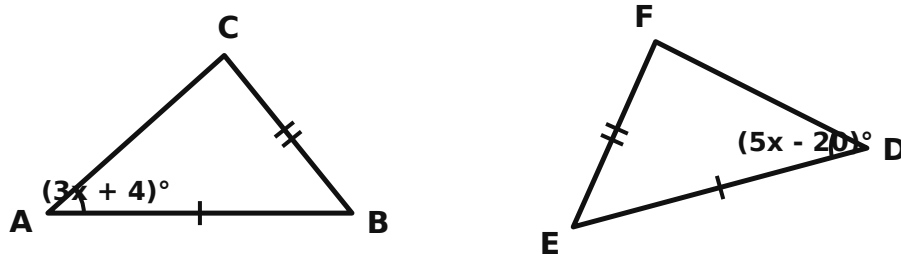
Name: _____ Class: _____ Date: ____/____/____

This 45-minute test checks congruence by rigid motions and the triangle congruence tests. 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: Congruent Triangles and Rigid Motions
- Standards: G-CO.B.7, G-CO.B.8
- Time: 45 minutes
- Total: 20 points

Question 1 - Corresponding parts [2 pts]



Triangle ABC is congruent to triangle DEF.

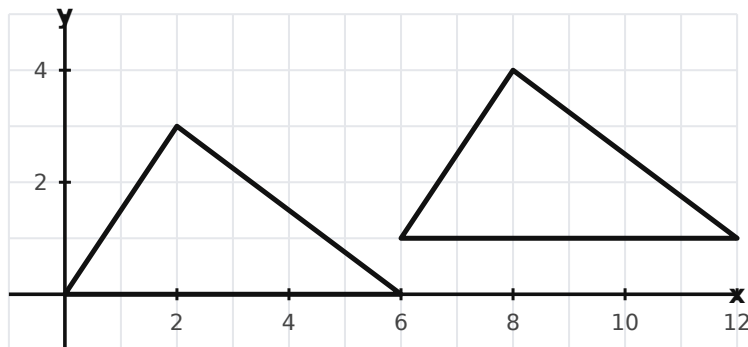
The triangles are congruent with vertices matching in order. Find x and $m\angle D$.

Question 2 - Which test? [3 pts]

- Triangles with $AB = DE$, $BC = EF$ and $AC = DF$. (1 point)
- Triangles with $AB = DE$, $m\angle A = m\angle D$ and $AC = DF$. (1 point)

- c. Triangles with $AB = DE$, $BC = EF$ and $m\angle A = m\angle D$, where angle A is opposite BC. (1 point)

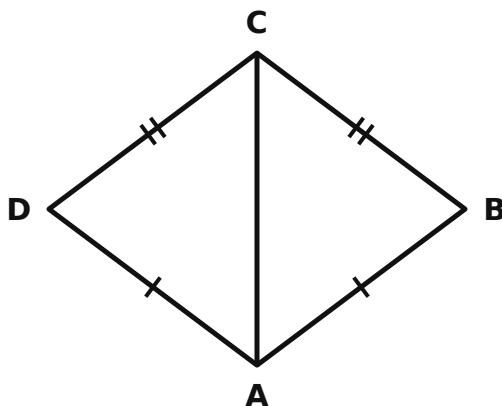
Question 3 - Congruence by coordinates [2 pts]



Triangle ABC and its image under $(x + 6, y + 1)$.

Triangle ABC has $A(0, 0)$, $B(6, 0)$ and $C(2, 3)$. Under a translation, A maps to $D(6, 1)$. Find E and F, and explain why the triangles are congruent.

Question 4 - Proof with a shared side [3 pts]



$AB = AD$ and $CB = CD$.

In kite ABCD, $AB = AD$ and $CB = CD$. Prove that $\angle B$ and $\angle D$ are congruent. Give each statement with a reason.

Question 5 - Hypotenuse-leg [2 pts]

Two right triangles each have a hypotenuse of 17 and one leg of 8. Show that they are congruent, and find the area of each.

Question 6 - SSA counterexample [2 pts]

Explain with a sketch or numbers why two triangles with sides 5 and 8 and a 30° angle opposite the side of length 5 are not necessarily congruent.

Question 7 - Third angle [2 pts]

Triangle ABC has $m\angle A = 40^\circ$, $m\angle B = 75^\circ$ and $AB = 11$. Triangle DEF has $m\angle D = 40^\circ$, $m\angle F = 65^\circ$ and $DE = 11$. Are the triangles congruent? Justify.

Question 8 - Surveying [2 pts]

Two surveyors stand 24 yards apart at points A and B on one side of a pond. Each measures the angle to a rock R across the pond as 52° at A and 61° at B. A third surveyor does the same from points C and D, also 24 yards apart, with 52° at C and 61° at D. Are the distances AR and the matching distance from C equal? Which test applies?

Question 9 - Perimeter [2 pts]

Triangle PQR is congruent to triangle XYZ with $PQ = 2n + 1$, $XY = 3n - 4$ and $QR = 14$. Find n and the perimeter of XYZ if $PR = 9$.