

Geometry · Congruent Triangles: SSS, SAS, ASA, AAS and HL · Quiz

Common Core G-CO.B.6, G-CO.B.7, G-CO.B.8, G-SRT.B.5 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

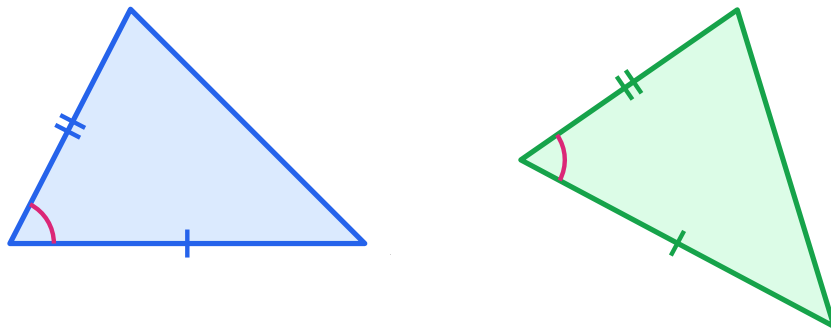
Ten multiple-choice questions check the congruence criteria, corresponding parts, and rigid motions. Choose the single best answer for each question. The explanation after each question names the typical mistake.

GeometryCommon Core: G-CO.B.6 · G-CO.B.7 · G-CO.B.8 · G-SRT.B.5

Questions

Question 1

Which criterion proves the two triangles congruent?



Marked triangles.

- A. SSS
- B. ASA
- C. SAS
- D. HL

Question 2

$\triangle ABC \cong \triangle DEF$. Which side corresponds to $\overline{BC}$?

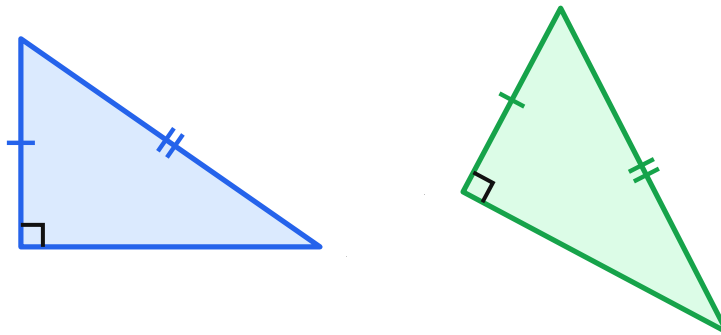
- A. $\overline{DE}$
- B. $\overline{DF}$

C. $\overline{AB}$

D. $\overline{EF}$

Question 3

Which criterion proves the two right triangles congruent?



Marked right triangles.

A. SAS

B. SSS

C. HL

D. AAS

Question 4

$\triangle ABC \cong \triangle DEF$, $m\angle A = (5x - 8)^\circ$, and $m\angle D = (3x + 14)^\circ$. What is $m\angle A$?

A. 11°

B. 55°

C. 47°

D. 33°

Question 5

Two triangles each have two sides and a non-included angle congruent (SSA). Which statement is true?

A. They are always congruent by SAS.

B. They might not be congruent, because SSA can fit two triangles.

C. They are always congruent by ASA.

D. They are congruent only if they are acute.

Question 6

Two triangles both have angles of 60° , 60° , and 60° . What can you conclude?

A. They have the same shape but may differ in size.

- B. They are congruent by AAA.
- C. They are congruent by AAS.
- D. They have equal perimeters.

Question 7

$\triangle PQR \cong \triangle STU$ by SAS. Which conclusion follows by CPCTC?

- A. $\angle Q \cong \angle T$
- B. $\angle Q \cong \angle S$
- C. $\angle Q \cong \angle U$
- D. $\angle R \cong \angle T$

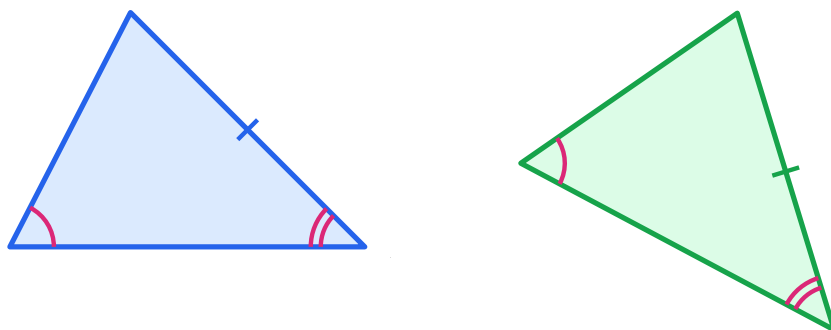
Question 8

Triangle ABC is reflected across the y -axis. Where does the image of $A(3,-2)$ land?

- A. $(3,2)$
- B. $(-3,2)$
- C. $(2,-3)$
- D. $(-3,-2)$

Question 9

Which criterion proves the two triangles congruent?



Marked triangles.

- A. ASA
- B. AAS
- C. SAS
- D. SSS

Question 10

Two right triangles each have a hypotenuse of 10 and a leg of 6. How long is the other leg of each?

- A. 8 units
- B. 4 units
- C. 16 units
- D. 11.7 units

Answer key

1. **C** – Two pairs of sides and the angle between them are marked, which is SAS. SSS would need a third pair of sides.
2. **D** – B matches E and C matches F, so BC corresponds to EF. Order of letters in the statement gives the match.
3. **C** – Each triangle has a right angle, and the hypotenuse and one leg are marked, so HL applies.
4. **C** – Set $5x - 8 = 3x + 14$ to get $x = 11$, then $5(11) - 8 = 47$. Stopping at $x = 11$ is the common slip.
5. **B** – The angle is not between the sides, so SAS does not apply. SSA can produce two different triangles.
6. **A** – Equal angles give the same shape only. Two equilateral triangles with different side lengths have three 60 degree angles.
7. **A** – Q is the second vertex of PQR and T is the second vertex of STU, so they correspond.
8. **D** – Reflecting across the y-axis changes the sign of x only. The image is congruent to the original triangle.
9. **B** – Two angles are marked, and the marked side is not between them, so the criterion is AAS.
10. **A** – The other leg is the square root of $100 - 36 = 64$, which is 8. Subtracting the lengths directly gives 4. The triangles are congruent by HL.

Remember:

- Rigid motions keep lengths and angle measures, so an image triangle is congruent to the original.
- Valid criteria are SSS, SAS, ASA, AAS, and HL (right triangles only).
- SSA and AAA do not prove congruence.
- CPCTC: after triangles are proven congruent, all their corresponding parts are congruent.