Congruent Triangles

Grade 7 topic · Higher tier · Edexcel and AQA

How to use this pack
20 questions that get harder as you go. Questions 1–15 (56 marks) build up to the harder Grade 8–9 style questions at the end; aim to complete all 20. Show your working on the lines and write your final answer on the answer line, then mark yourself with the answers at the back. Diagrams are not drawn accurately. Total: 81 marks.

Warm-up

1 Triangle ABC has AB = 11 cm, BC = 14 cm, AC = 15 cm. Triangle PQR has PQ = 11 cm, QR = 14 cm, PR = 15 cm. Are the triangles congruent? Give a reason. **[3 marks]**

Answer _____

2 Triangle ABC has AB = 6 cm, BC = 9 cm and angle B = 70°. Triangle PQR has PQ = 6 cm, QR = 9 cm and angle Q = 70°. Are the triangles congruent? Give a reason. **[3 marks]**

Answer _____

3 Triangle ABC has angle A = 70°, angle B = 45° and AB = 5 cm. Triangle PQR has angle P = 70°, angle Q = 45° and PQ = 5 cm. Are the triangles congruent? Give a reason. **[3 marks]**

Answer _____

4 Triangle ABC has angle B = 90°, hypotenuse AC = 14 cm and AB = 7 cm. Triangle PQR has angle Q = 90°, hypotenuse PR = 14 cm and PQ = 7 cm. Are the triangles congruent? Give a reason. **[3 marks]**

Answer _____

5 Triangle ABC has AB = 6 cm, BC = 8 cm, AC = 11 cm. Triangle PQR has PQ = 6 cm, QR = 8 cm, PR = 11 cm. Are the triangles congruent? Give a reason. **[3 marks]**

Answer _____

Core

6 Triangle ABC has angles 40°, 65° and 75°. Triangle PQR has the same three angles. Are the triangles definitely congruent? Explain. **[3 marks]**

Answer _____

7 Triangle ABC has AB = 7 cm, BC = 11 cm and angle A = 70° (not between the sides). Triangle PQR has PQ = 7 cm, QR = 11 cm and angle P = 70°. Are they definitely congruent? **[4 marks]**

Answer _____

8 Triangle ABC has angle B = 90°, hypotenuse AC = 14 cm and AB = 5 cm. Triangle PQR has angle Q = 90°, hypotenuse PR = 14 cm and PQ = 5 cm. Are the triangles congruent? Give a reason. **[3 marks]**

Answer _____

9 State the four conditions for two triangles to be congruent. **[3 marks]**

Answer _____

10 List the conditions that do NOT prove congruence. **[3 marks]**

Answer _____

Stretch

11 ABCD is a parallelogram. Prove that triangles ABC and CDA are congruent. **[5 marks]**

Answer _____

12 ABCD is a rectangle. Prove that triangles ABD and BCD are congruent. **[5 marks]**

Answer _____

13 In triangle PQR, PQ = PR and M is the midpoint of QR. Prove that triangles PQM and PRM are congruent. **[5 marks]**

Answer _____

14 Two circles have centres A and B and meet at P and Q. Prove triangles APB and AQB are congruent. **[5 marks]**

Answer _____

15 ABC is an equilateral triangle. D is the midpoint of BC. Prove that triangles ABD and ACD are congruent. **[5 marks]**

Answer _____

Challenge

16 ABCD is a kite with AB = AD and CB = CD. Prove that triangles ABC and ADC are congruent, and hence that angle ABC = angle ADC. **[6 marks]**

Answer _____

17 PQRS is a square. Prove that triangles PQR and RSP are congruent. **[5 marks]**

Answer _____

18 In triangle ABC, the bisector of angle A meets BC at D and AD is perpendicular to BC. Prove that AB = AC. **[6 marks]**

Answer _____

19 Two straight lines AB and CD cross at X, and X is the midpoint of both. Prove that triangles AXC and BXD are congruent. **[5 marks]**

Answer _____

20 Explain why congruent triangles must have the same area. **[3 marks]**

Answer _____