

## Worksheet: Triangles

NIOS · Class 9 · Mathematics · 13 questions · 28 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 28

**Q1.** In  $\triangle ABC$  and  $\triangle PQR$ ,  $AB = PQ$ ,  $BC = QR$ ,  $AC = PR$ . Which congruence rule applies? [1 mark]

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**Q2.** Two right triangles have hypotenuses 13 cm each and one leg 5 cm each. Which rule proves congruence? [1 mark]

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**Q3.** A triangle has all sides equal. Classify it by sides and by angles. [1 mark]

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**Q4.** Can sides 4, 5, 10 form a triangle? [1 mark]

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**Q5.** In  $\triangle ABC$ ,  $A = 90^\circ$ ,  $B = 60^\circ$ ,  $C = 30^\circ$ . Order the sides from longest to shortest. [1 mark]

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**Q6.** In  $\triangle ABC$  and  $\triangle PQR$ ,  $AB = PQ$ ,  $B = Q$ ,  $BC = QR$ . Are the triangles congruent? State the rule. [2 marks]

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**Q7.** In  $\triangle ABC$ ,  $AB = AC$  and  $A = 50^\circ$ . Find  $B$  and  $C$ . [2 marks]

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**Q8.** In  $\triangle ABC$ ,  $B = C = 55^\circ$ . Show that  $AB = AC$ . [2 marks]

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**Q9.** Three sides of a triangle are 6 cm, 8 cm, x cm. Find the range of possible values of x. [3 marks]

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**Q10.** In  $\triangle ABC$ , AD is the median to BC (so D is midpoint of BC). If  $AB = AC$ , prove  $\triangle ABD \cong \triangle ACD$  and conclude  $ABD = ACD$ . [3 marks]

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**Q11.** In two right triangles  $\triangle ABC$  (right-angled at B) and  $\triangle PQR$  (right-angled at Q), the hypotenuses AC and PR are equal, and one leg  $AB = PQ$ . Prove the triangles are congruent. [3 marks]

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**Q12.** Prove: if a point P is equidistant from two points A and B, then P lies on the perpendicular bisector of AB. [4 marks]

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**Q13.** In  $\triangle ABC$ ,  $AB = AC$ . The bisectors of B and C meet at point O. Prove that AO bisects A. [4 marks]

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