

CLASS 7

MATHS

EXTRA QUESTIONS

Extra Questions for Class 7 Maths Chapter 7: A Tale of Three Intersecting Lines – HOTS

Fresh HOTS practice questions for Class 7 Maths Chapter 7 "A Tale of Three Intersecting Lines", testing the triangle inequality, angle sum property, and exterior angle theorem with new numbers.

Fresh HOTS practice questions for Class 7 Maths Chapter 7 “A Tale of Three Intersecting Lines”, testing the triangle inequality, angle sum property, and exterior angle theorem with new numbers.

Q1.

Can a triangle have side lengths 6 cm, 7 cm, and 14 cm? Justify your answer.

Answer: No. Since $6+7 = 13$, which is less than 14, the triangle inequality fails, so this triangle cannot exist.

Q2.

Two sides of a triangle are 9 cm and 4 cm. What is the range of possible values for the third side?

Answer: The third side must satisfy $(9-4) < \text{third side} < (9+4)$, i.e., strictly between **5 cm and 13 cm**.

Q3. Assertion-Reason

Assertion (A): A triangle with angles 100° , 50° , 40° is valid.

Reason (R): The three angles must sum to 180° .

Answer: R is true, but A is false ($100+50+40 = 190^\circ \neq 180^\circ$), so this angle set is invalid. Since A is false, the combined statement is incorrect.

Q4.

In a triangle, one angle is 90° and another is 35° . Find the third angle and classify the triangle by its angles.

Answer: Third angle = $180 - 90 - 35 = 55^\circ$. Since one angle is exactly 90° , this is a **right-angled triangle**.

Q5. Spot the error

A student says: “Since $4+5=9$ and the third side is 9, a triangle with sides 4, 5, 9 is valid.” Identify and correct the error.

Answer: This is incorrect. The triangle inequality requires the sum of two sides to be **strictly greater than** the third side, not equal to it. Since $4+5=9$ exactly equals the third side, the triangle is degenerate (the three points would be collinear) and does not form a valid triangle.

Q6.

The exterior angle of a triangle at vertex C is 130° , and one of the remote interior angles (at A) is 55° . Find the interior angle at B.

Answer: By the Exterior Angle Theorem, exterior angle = sum of remote interior angles: $130 = 55 + \text{angle B}$, so angle B = **75°** .

Q7.

Can an isosceles triangle have angles 50° , 50° , and 80° ? Verify and classify the triangle.

Answer: Yes. The angles sum to $50+50+80=180^\circ$ [?], and two angles are equal (50° each), confirming it is **isosceles**. Since all angles are less than 90° , it is also an **acute-angled** triangle.

Q8.

A triangle has sides 8 cm, 8 cm, and 8 cm. Classify this triangle by both its sides and its angles.

Answer: By sides: **equilateral** (all three sides equal). By angles: each angle = $180 \div 3 = 60^\circ$, so it is also **acute-angled** (specifically, equiangular).

Q9.

Two angles of a triangle are 48° and 48° . What type of triangle is this (by sides)?

Answer: Since two angles are equal, the sides opposite them are also equal, making this an **isosceles** triangle. Third angle = $180 - 48 - 48 = 84^\circ$.

Q10.

Explain why a triangle can never have two obtuse angles.

Answer: If a triangle had two angles each greater than 90° , their sum alone would already exceed 180° , leaving no room for a positive third angle. Since all three angles must sum to exactly 180° , at most one angle can be obtuse (or right).

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Revision Notes: [Class 7 Maths Chapter 7 Revision Notes](#)