

CLASS 7

MATHS

EXTRA QUESTIONS

## Extra Questions for Class 7 Maths Chapter 5: Parallel and Intersecting Lines – HOTS

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Fresh HOTS practice questions for Class 7 Maths Chapter 5 "Parallel and Intersecting Lines", testing angle-relationship concepts with new numbers.

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### Q1.

Two parallel lines are cut by a transversal. One of the co-interior angles is  $72^\circ$ . Find the other co-interior angle.

**Answer:** Co-interior angles sum to  $180^\circ$ , so the other angle =  $180^\circ - 72^\circ = 108^\circ$

### Q2.

If two lines intersect and one of the four angles formed is  $35^\circ$ , find the other three angles.

**Answer:** The angle vertically opposite  $35^\circ$  is also  $35^\circ$ . The two remaining angles (forming linear pairs with  $35^\circ$ ) are each  $180^\circ - 35^\circ = 145^\circ$ . So the four angles are  **$35^\circ$ ,  $145^\circ$ ,  $35^\circ$ ,  $145^\circ$**

### Q3. Assertion-Reason

**Assertion (A):** If a transversal crosses two parallel lines, corresponding angles are equal.

**Reason (R):** Corresponding angles occupy the same relative position at each intersection point.

**Answer:** Both A and R are true, and R correctly explains A.

### Q4.

Two lines l and m are both perpendicular to line n. What is the relationship between l and m, and why?

**Answer:** Lines l and m are **parallel** to each other, because two lines that are each perpendicular to the same line must be parallel.

### Q5. Spot the error

A student claims: “Since angle 1 and angle 2 are vertically opposite angles, they add up to  $180^\circ$ .” Identify and correct the error.

**Answer:** This is incorrect. Vertically opposite angles are always **equal** to each other, not supplementary. It is linear pairs (adjacent angles on a straight line) that add up to  $180^\circ$ .

### Q6.

In a figure, a transversal crosses two parallel lines. One interior angle on one side is  $3x$ , and the co-interior angle on the same side is  $2x + 30^\circ$ . Find x and both angles.

**Answer:**  $3x + (2x+30) = 180 \Rightarrow 5x + 30 = 180 \Rightarrow 5x = 150 \Rightarrow x = 30$ . Angles:  $3(30) = 90^\circ$  and  $2(30)+30 = 90^\circ$

**Q7.**

A ladder leans against a wall such that it makes a  $65^\circ$  angle with the ground. What angle does it make with the wall (assuming the wall is perpendicular to the ground)?

**Answer:** The ladder, wall, and ground form a right triangle where the ground and wall meet at  $90^\circ$ . The angle with the wall =  $90^\circ - 65^\circ = 25^\circ$

**Q8.**

Two parallel railway tracks are crossed by a diagonal road (transversal). If the angle between the road and one track is  $58^\circ$ , what is the angle between the road and the other track on the same side (co-interior)?

**Answer:**  $180^\circ - 58^\circ = 122^\circ$

**Q9.**

Explain, with reasoning, whether two lines that are both parallel to a third line must be parallel to each other.

**Answer:** Yes. If line A is parallel to line C, and line B is parallel to line C, then line A must be parallel to line B, since both maintain a constant, non-intersecting distance from line C in the same plane, and cannot converge with each other either.

**Q10.**

In a figure, alternate interior angles are marked  $(5x - 10)^\circ$  and  $(3x + 20)^\circ$ . Find x and the measure of each angle.

**Answer:** Alternate interior angles are equal:  $5x - 10 = 3x + 20 \Rightarrow 2x = 30 \Rightarrow x = 15$ . Each angle =  $5(15) - 10 = 65^\circ$

NCERT Solutions: [Class 7 Maths Chapter 5](#)

Revision Notes: [Class 7 Maths Chapter 5 Revision Notes](#)