Parallel and Intersecting Lines

Standard difficulty · 20 questions · 40 marks · Time: 28 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. Two lines cross. One angle is 50°. The angle vertically opposite it is:
(a) 130° **(b)** 50° **(c)** 40° **(d)** 310°

2. Two angles form a linear pair. One is 72°. The other is:
(a) 108° **(b)** 72° **(c)** 288° **(d)** 18°

3. When two lines cross, the angles opposite each other are called:
(a) corresponding angles **(b)** alternate angles
(c) vertically opposite angles **(d)** co-interior angles

4. A transversal crosses two parallel lines, making a 40° angle at the first line. The corresponding angle at the second line is:
(a) 50° **(b)** 320° **(c)** 140° **(d)** 40°

5. Two parallel lines are cut by a transversal. One interior angle is 135°. The interior angle on the same side of the transversal is:
(a) 46° **(b)** 135° **(c)** 225° **(d)** 45°

6. A transversal makes alternate angles of 116° and 116° with two lines. The lines are:
(a) parallel **(b)** perpendicular **(c)** not parallel **(d)** the same line

7. Two lines cross and one angle is 70°. The angle opposite it is:
(a) 290° **(b)** 70° **(c)** 110° **(d)** 20°

8. The two angles of a linear pair are in the ratio 5 : 1. The larger angle is:
(a) 150° **(b)** 151° **(c)** 30° **(d)** 210°

Section B — Short answer — 8 × 2 = 16 marks

9. Two lines cross and one of the angles is 128°. Find the other three angles.

10. Two angles form a linear pair. One is 20° more than the other. Find both.

11. A transversal crosses two parallel lines, making 8 angles. One of them is 122°. What are the sizes of all 8 angles?

12. A transversal makes interior angles of 114° and 57° on the same side, between two lines. Are the lines parallel? Why?

13. Three lines pass through one point. Three angles next to each other along a straight line are 94°, 55° and x. Find x.

14. Lines l and m are perpendicular. A third line through their crossing point makes 72° with l. What angle does it make with m?

15. Two parallel lines are cut by a transversal. One angle is 121°. Find its alternate angle and its co-interior angle.

16. Two angles of a linear pair are in the ratio 7 : 8. Find them.

Section C — Word problems — 4 × 4 = 16 marks

17. A straight road crosses two parallel railway tracks, making a 95° angle with the first track. Find the corresponding angle at the second track, the alternate angle, and the co-interior angle.

18. The blades of a pair of scissors cross at an angle of 48°. Find the other three angles made where they cross.

19. Asha's ladder has parallel rungs. One side rail makes an angle of 80° with the bottom rung (inside the ladder). What angle does it make with the next rung up, on the same inside?

20. Two parallel streets are crossed by a straight lane. At the first street the lane makes 108° on its right-hand side. What angle does it make at the second street on the opposite side of the lane, between the streets (the alternate angle)?

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Answer key

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Q	Answer	Working
1	**(b) 50°**	vertically opposite angles are equal
2	**(a) 108°**	180° − 72°
3	**(c) vertically opposite angles**	—
4	**(d) 40°**	corresponding angles are equal when the lines are parallel
5	**(d) 45°**	co-interior angles add up to 180°: 180° − 135°
6	**(a) parallel**	alternate angles are equal
7	**(b) 70°**	vertically opposite angles are equal
8	**(a) 150°**	180° ÷ 6 = 30°; × 5
9	**52°, 128°, 52°**	vertically opposite angles are equal; neighbours add up to 180°
10	**80° and 100°**	(180° − 20°) ÷ 2 = 80°
11	**four of 122° and four of 58°**	corresponding, alternate and vertically opposite angles are equal; linear pairs add to 180°
12	**No**	114° + 57° = 171°; parallel lines give 180°
13	**31°**	180° − 94° − 55°
14	**18°**	90° − 72°
15	**alternate 121°; co-interior 59°**	alternate angles are equal; co-interior angles add to 180°
16	**84° and 96°**	180° ÷ 15 = 12°
17	**95°, 95°, 85°**	corresponding and alternate angles are equal; co-interior angles add to 180°
18	**132°, 48°, 132°**	opposite angles are equal; neighbouring angles add to 180°
19	**100°**	co-interior angles between parallel rungs add to 180°: 180° − 80°
20	**108°**	alternate angles between parallel lines are equal

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