

UNIQUE STUDY POINT

AMITESH NAGAR, INDORE

PRACTICE PAPER 01 (2026-27)

CHAPTER 05 PARALLEL AND INTERSECTING LINES

Prepared by: SUMEET SAHU | Website : [Click Here](#) | WhatsApp Channel : [Click Here](#)

Class : VII

Subject : Mathematics

Time : 1 hr 30 min

M.M. : 40

General Instructions :

- This question paper contains **21** questions divided into **four** sections A, B, C and D.
- **Section A** has 10 multiple choice questions of 1 mark each.
- **Section B** has 5 short answer questions of 2 marks each.
- **Section C** has 4 short answer questions of 3 marks each.
- **Section D** has 2 case based questions of 4 marks each.
- All questions are compulsory. Use of a calculator is **not** permitted.

SECTION - A

This section consists of 10 multiple choice questions of 1 mark each.

1. When two lines intersect, the number of angles formed is 1
(A) 4 (B) 2 (C) 3 (D) 6
2. Vertically opposite angles are always 1
(A) supplementary (B) equal (C) complementary (D) adjacent
3. A linear pair of angles always adds up to 1
(A) 90° (B) 270° (C) 180° (D) 360°
4. When a transversal cuts two parallel lines, corresponding angles are 1
(A) supplementary (B) complementary (C) vertically opposite (D) equal
5. If one angle of a linear pair is 62° , the other angle is 1
(A) 62° (B) 118° (C) 128° (D) 298°
6. Alternate interior angles formed by a transversal cutting two parallel lines are 1
(A) equal (B) supplementary (C) complementary (D) adjacent
7. If two lines are perpendicular, each of the four angles formed is 1
(A) 45° (B) 60° (C) 120° (D) 90°
8. Co-interior angles (same-side interior angles) formed by a transversal cutting two parallel lines add up to 1
(A) 90° (B) 270° (C) 180° (D) 360°

Directions (Q. 9 and Q. 10) : In each of the following questions, a statement of **Assertion (A)** is followed by a statement of **Reason (R)**. Choose the correct option : **(A)** Both A and R are true and R is the correct explanation of A. **(B)** Both A and R are true but R is not the correct explanation of A. **(C)** A is true but R is false. **(D)** A is false but R is true.

9. **Assertion (A) :** Vertically opposite angles are equal. 1
Reason (R) : When two lines intersect, each angle and its vertically opposite angle together with an adjacent angle form two linear pairs, forcing the opposite angles to be equal.
10. **Assertion (A) :** If corresponding angles are equal, the lines are parallel. 1
Reason (R) : The corresponding angles postulate states that equal corresponding angles is both a consequence and a condition for lines being parallel.

SECTION - B

This section consists of 5 questions of 2 marks each.

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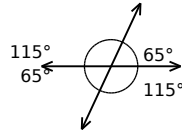
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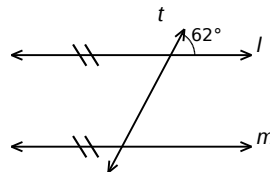
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11. Two lines intersect and one of the four angles formed is 65° . Find all four angles. 2



12. In the figure, $l \parallel m$ and t is a transversal. One of the angles formed is 62° . Find : (i) the corresponding angle (ii) the alternate interior angle (iii) the co-interior angle. 2

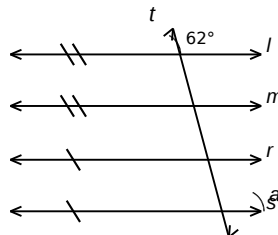


13. Two straight lines intersect. One angle is $(3x + 10)^\circ$ and its vertically opposite angle is $(5x - 30)^\circ$. Find x and all four angles. 2
14. Explain with a reason whether the following pairs of lines are parallel : (i) A transversal cuts two lines forming corresponding angles of 75° and 75° . (ii) A transversal cuts two lines forming alternate angles of 65° and 70° . 2
15. A transversal cuts two parallel lines. One angle formed is 132° . Using this, find all 8 angles formed by the transversal. Identify which angles are equal and which are supplementary. 2

SECTION - C

This section consists of 4 questions of 3 marks each.

16. In the figure, lines $l \parallel m$ and line $r \parallel s$. A transversal t cuts all four lines. If one angle at the first intersection is 62° , find the angle a at the last intersection. Justify each step using the properties of parallel lines. 3



17. In a figure, a transversal crosses two parallel lines. The co-interior angles are $(2x + 15)^\circ$ and $(3x - 5)^\circ$. Find x and both angles. Verify your answer. 3
18. Define : (i) intersecting lines (ii) parallel lines (iii) transversal (iv) alternate interior angles. Give one real-life example each for intersecting and parallel lines. 3
19. Two parallel lines are cut by a transversal. One of the co-interior angles is three times the other. Find both angles. 3

SECTION - D

This section consists of 2 case based questions of 4 marks each.

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- 20.** A road crosses a railway track. The road and track are straight lines. **4**
- (i) How many angles are formed at the crossing ?
 - (ii) If the road crosses at 42° , find all four angles at the crossing.
 - (iii) Another road runs parallel to the first road and also crosses the railway track. What are the corresponding angles at the second crossing ?
 - (iv) What is the sum of the co-interior angles at the two crossings on the same side of the track ?
- 21.** In a figure, $l \parallel m$, and a transversal t intersects them. **4**
- (i) If $\angle 1 = 110^\circ$, find $\angle 2$ (linear pair of $\angle 1$).
 - (ii) Find $\angle 3$ (vertically opposite to $\angle 1$).
 - (iii) Find $\angle 5$ (corresponding to $\angle 1$).
 - (iv) Find $\angle 6$ (alternate interior to $\angle 1$) and $\angle 7$ (co-interior to $\angle 1$).

----- All the Best -----

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SECTION - A (Answer Key)

Q	1	2	3	4	5	6	7	8	9	10
Ans	(A)	(B)	(C)	(D)	(B)	(A)	(D)	(C)	(A)	(A)

SECTION A - Detailed Answers (1 mark each)

- When two lines intersect, the number of angles formed is 1
(A) 4 (B) 2 (C) 3 (D) 6
Ans (A) : Two intersecting lines form 4 angles: two pairs of vertically opposite angles.
- Vertically opposite angles are always 1
(A) supplementary (B) equal (C) complementary (D) adjacent
Ans (B) : Vertically opposite angles are always equal — proved by the linear pair property.
- A linear pair of angles always adds up to 1
(A) 90° (B) 270° (C) 180° (D) 360°
Ans (C) : A linear pair is formed when two angles are adjacent and their non-common sides form a straight line: $\text{sum} = 180^\circ$.
- When a transversal cuts two parallel lines, corresponding angles are 1
(A) supplementary (B) complementary (C) vertically opposite (D) equal
Ans (D) : Corresponding angles property: when a transversal cuts parallel lines, corresponding angles are equal.
- If one angle of a linear pair is 62° , the other angle is 1
(A) 62° (B) 118° (C) 128° (D) 298°
Ans (B) : Linear pair: $62^\circ + ? = 180^\circ$. $? = 118^\circ$.
- Alternate interior angles formed by a transversal cutting two parallel lines are 1
(A) equal (B) supplementary (C) complementary (D) adjacent
Ans (A) : Alternate interior angles are equal for parallel lines (Z-angle property).
- If two lines are perpendicular, each of the four angles formed is 1
(A) 45° (B) 60° (C) 120° (D) 90°
Ans (D) : Perpendicular lines form right angles: each of the 4 angles = 90° .
- Co-interior angles (same-side interior angles) formed by a transversal cutting two parallel lines add up to 1
(A) 90° (B) 270° (C) 180° (D) 360°
Ans (C) : Co-interior angles are supplementary ($\text{sum} = 180^\circ$) when lines are parallel.
- Assertion (A) : Vertically opposite angles are equal. 1
Reason (R) : When two lines intersect, each angle and its vertically opposite angle together with an adjacent angle form two linear pairs, forcing the opposite angles to be equal.
Ans (A) : Both true and R correctly explains A: the two linear pair equations force the opposite angles to be equal.
- Assertion (A) : If corresponding angles are equal, the lines are parallel. 1
Reason (R) : The corresponding angles postulate states that equal corresponding angles is both a consequence and a condition for lines being parallel.
Ans (A) : Both true and R correctly explains A: equal corresponding angles both proves and follows from lines being parallel.

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SECTION B - Short Answer (2 marks each)

11. Two lines intersect and one of the four angles formed is 65° . Find all four angles. 2
Solution : One angle = 65° . Vertically opposite = 65° . Linear pair angles = $180^\circ - 65^\circ = 115^\circ$ each. Four angles: **$65^\circ, 115^\circ, 65^\circ, 115^\circ$** .
12. In the figure, $l \parallel m$ and t is a transversal. One of the angles formed is 62° . Find : (i) the corresponding angle (ii) the alternate interior angle (iii) the co-interior angle. 2
Solution : (i) Corresponding = 62° . (ii) Alternate interior = 62° (alternate interior angles are equal for parallel lines). (iii) Co-interior = $180^\circ - 62^\circ = 118^\circ$.
13. Two straight lines intersect. One angle is $(3x + 10)^\circ$ and its vertically opposite angle is $(5x - 30)^\circ$. Find x and all four angles. 2
Solution : Vertically opposite: $3x + 10 = 5x - 30$. $40 = 2x$. $x = 20$. Angles: $3(20) + 10 = 70^\circ$, $5(20) - 30 = 70^\circ$, and two angles of 110° .
14. Explain with a reason whether the following pairs of lines are parallel : (i) A transversal cuts two lines forming corresponding angles of 75° and 75° . (ii) A transversal cuts two lines forming alternate angles of 65° and 70° . 2
Solution : (i) Corresponding angles = $75^\circ = 75^\circ$. Since they are equal, the lines are **parallel**. (ii) Alternate angles = 65° and 70° . Since they are NOT equal, the lines are **NOT parallel**.
15. A transversal cuts two parallel lines. One angle formed is 132° . Using this, find all 8 angles formed by the transversal. Identify which angles are equal and which are supplementary. 2
Solution : One angle = 132° . Vertically opposite = 132° . Linear pair = 48° . Another vertically opposite = 48° . At the second intersection (parallel line): Corresponding = $132^\circ, 132^\circ$. And $48^\circ, 48^\circ$. Equal angles: $(132^\circ, 132^\circ, 132^\circ, 132^\circ)$ and $(48^\circ, 48^\circ, 48^\circ, 48^\circ)$. Supplementary pairs: $132^\circ + 48^\circ = 180^\circ$.

SECTION C - Short Answer (3 marks each)

16. In the figure, lines $l \parallel m$ and line $r \parallel s$. A transversal t cuts all four lines. If one angle at the first intersection is 62° , find the angle a at the last intersection. Justify each step using the properties of parallel lines. 3
Solution : Angle at first intersection = 62° . $l \parallel m$: corresponding angle at second intersection = 62° . $r \parallel s$: corresponding angle at further intersection = 62° . So $a = 62^\circ$ (by repeated application of corresponding angles).
17. In a figure, a transversal crosses two parallel lines. The co-interior angles are $(2x + 15)^\circ$ and $(3x - 5)^\circ$. Find x and both angles. Verify your answer. 3
Solution : $(2x + 15) + (3x - 5) = 180$. $5x + 10 = 180$. $5x = 170$. $x = 34$. Angles: $2(34) + 15 = 83^\circ$ and $3(34) - 5 = 97^\circ$. Verify: $83 + 97 = 180$. $\square$
18. Define : (i) intersecting lines (ii) parallel lines (iii) transversal (iv) alternate interior angles. Give one real-life example each for intersecting and parallel lines. 3
Solution : (i) Intersecting lines: two lines that cross at one point. Real life: roads crossing. (ii) Parallel lines: lines that never meet. Real life: railway tracks. (iii) Transversal: a line that crosses two or more lines. (iv) Alternate interior angles: angles between the parallel lines on opposite sides of the transversal; they are equal.
19. Two parallel lines are cut by a transversal. One of the co-interior angles is three times the other. Find both angles. 3
Solution : Let angles be x and $3x$. Co-interior: $x + 3x = 180$. $4x = 180$. $x = 45^\circ$. Other angle = $3 \times 45 = 135^\circ$.

SECTION D - Case Based (4 marks each)

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- 20.** A road crosses a railway track. The road and track are straight lines. **4**
- (i) How many angles are formed at the crossing ?
Ans : 4 angles.
- (ii) If the road crosses at 42° , find all four angles at the crossing.
Ans : 42° and its vertically opposite = 42° . Linear pairs = $180 - 42 = 138^\circ$ each. Four angles: $42^\circ, 138^\circ, 42^\circ, 138^\circ$.
- (iii) Another road runs parallel to the first road and also crosses the railway track. What are the corresponding angles at the second crossing ?
Ans : Corresponding angles = 42° and 138° (same as at the first crossing).
- (iv) What is the sum of the co-interior angles at the two crossings on the same side of the track ?
Ans : Co-interior angles at each crossing: $42 + 138 = 180$. Sum at two crossings on same side = 180° (same co-interior pair).
- 21.** In a figure, $l \parallel m$, and a transversal t intersects them. **4**
- (i) If $\angle 1 = 110^\circ$, find $\angle 2$ (linear pair of $\angle 1$).
Ans : $\angle 2 = 180 - 110 = 70^\circ$.
- (ii) Find $\angle 3$ (vertically opposite to $\angle 1$).
Ans : $\angle 3 = 110^\circ$ (vertically opposite to $\angle 1$).
- (iii) Find $\angle 5$ (corresponding to $\angle 1$).
Ans : $\angle 5 = 110^\circ$ (corresponding to $\angle 1$; $l \parallel m$).
- (iv) Find $\angle 6$ (alternate interior to $\angle 1$) and $\angle 7$ (co-interior to $\angle 1$).
Ans : $\angle 6 = 70^\circ$ (alternate interior to $\angle 1$, equal). $\angle 7 = 180 - 110 = 70^\circ$ (co-interior with $\angle 1$).