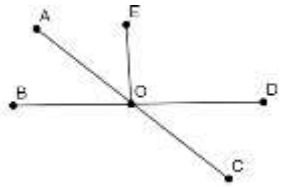
INDIAN SCHOOL AL WADI AL KABIR

Class VII, Mathematics (2026-27)

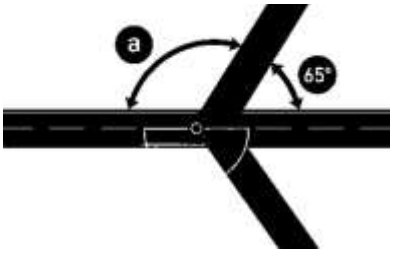
Worksheet DTQ – Parallel and Intersecting lines

SHORT ANSWER TYPE QUESTIONS (2 Marks each)

Q1. Observe the given figure.
(i) Write any two pairs of adjacent angles.
(ii) Write any two linear pairs.

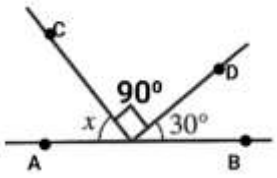


Q2. In the given diagram, two side roads intersect a main straight road at a single junction point. The angle formed between one side road and the main road on the right is $65°$. Without measuring, find the value of $\angle$a. Give a reason for your answer.

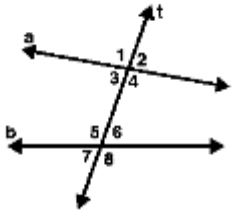


Q3. Parallel lines l and m are intersected by transversal t. If interior angle $\angle$a = 58°, find the measure of co-interior angle $\angle$b on the same side of the transversal. Give a reason for your answer.

Q4. Observe the given figure.
Find $\angle x$. Give a reason for your answer.



Q5. Observe the given figure.
(i) Write any two pairs of corresponding angles.
(ii) Write any two pairs of alternate interior angles.

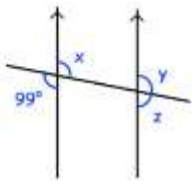


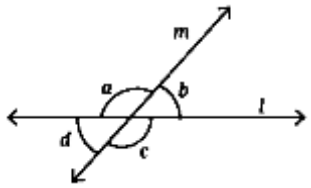
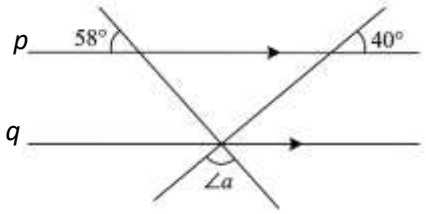
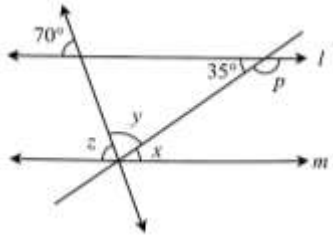
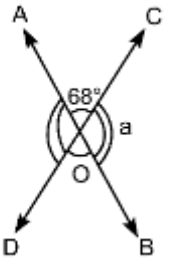
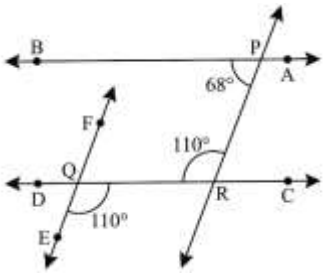
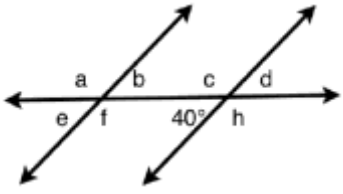
Q6. When a pair of craft scissors is held open, the two metal arms cross each other at a center screw, forming two intersecting straight lines.
If the angle between the two blades at the top is **45°**, what is the measure of the angle between the two handles at the bottom? Write the reason for your answer.

Q7. If one angle in a linear pair measure $127°$, what is the measure of the other angle?

SHORT ANSWER TYPE (3 Marks each)

Q8. Find the measure of the angles x, y and z in the given figure, using the property of parallel lines. Write reason for your answer.



Q9.	In the given figure, if $\angle c$ is 120^0. Find the measures of ∠a, ∠b, and ∠d without measuring them. Write the reason for your answer. 
Q10.	Flight A travels along line p and Flight B travels along line q. Air traffic control predicts that a transversal line t intersects both flight paths at two different points. If the alternate interior angles formed are measured as 65° and 70°, determine whether flight paths p and q are parallel. Justify your answer.
Q11.	In the following figure, lines p and q are parallel. Find the measure of ∠a, using the properties of parallel lines. Write reason for your answer. 
Q12.	In the following figure, lines l and m are parallel. Find the value of x, y, z and p. Write reason for your answer. 
LONG ANSWER TYPE (4 Marks each)	
Q13.	Observe the given figure. (i) Write down each pair of vertically opposite angles. (ii) Find ∠a. Write reason for your answer. (iii) Find ∠AOD. Write reason for your answer. (iv) Find ∠BOD. Write reason for your answer. 
Q14.	Observe the given figure. State the pair of parallel lines. Write reason for your answer. 
Q15.	A transversal intersects two parallel lines, creating an angle of 40°. What are the measures of the other seven angles formed? Explain your reasoning using the properties of parallel lines and transversals. 

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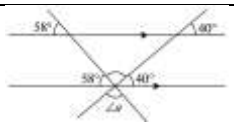
ANSWERS							
Q1.	(i) $\angle$BOA and $\angle$AOE $\angle$AOE and $\angle$EOD (ii) $\angle$BOA and $\angle$AOD (on straight line BD) $\angle BOC$ and $\angle COD$ (on straight line BD)	Q2.	$a = 180° - 65° = 115°$ (linear pair)	Q3.	$\angle b = 180° - 58° = 122°$ (Co-interior angles are supplementary)	Q4.	$\angle x = 180° - (90° + 30°) = 180° - 120° = 60°$ (angles on a straight line)
Q5.	(i) $\angle 1$ and $\angle 5$ $\angle 2$ and $\angle 6$ *(Other valid pairs: $\angle 3$ and $\angle 7$, or $\angle 4$ and $\angle 8$)* (ii) $\angle 3$ and $\angle 6$ $\angle 4$ and $\angle 5$	Q6.	$45°$ (Vertically opposite angles are equal)	Q7.	$180° - 127° = 53°$ (supplementary angles)	Q8.	Angle x = $99°$ (Vertically opposite angles) Angle y = $99°$ (Corresponding angles) Angle z $=180° - 99° = 81°$ (Linear pair)
Q9.	$\angle a = 120°$ (Vertically opposite angles) $\angle b = 180° - 120° = 60°$ (Linear pair) $\angle d = 60°$ (Vertically opposite angles)	Q10.	No, flight paths $\boldsymbol{p}$ and $\boldsymbol{q}$ are not parallel. Reason: For two lines to be parallel, their alternate interior angles must be equal. Here, $\mathbf{65°} \neq \mathbf{70°}$.	Q11.	 $180° - (40° + 58°) = 82°$ (Angles on a straight line) $\angle a = 82°$ (Vertically opposite angles)	Q12.	$p = 145°$ (Linear pair) $x = 35°$ Alternate interior angle) $z = 70°$ (Corresponding angles) $y = 180° - (70° + 35°) = 75°$. (Angles on a straight line)
Q13.	(i) $\angle AOC$ and $\angle BOD$; $\angle AOD$ and $\angle COB$ (ii) $\angle a = 180° - 68° = 112°$ (Linear pair)	Q14.	Line FE ‖Line PR Reason: Alternate interior angles are equal ($\angle EQR = \angle PRQ = 110°$).	Q15.	$\angle d = 40°$ (Vertically opposite angles) $\angle c = 180° - 40° = 140°$ (Linear pair)		

	(iii) $\angle AOD = 112^\circ$ (Vertically opposite angles) (iv) $\angle BOD = 68^\circ$ (Vertically opposite to $\angle AOC$)				$\angle h = 140^\circ$ (Vertically opposite angles) $\angle e = 40^\circ$ (Corresponding angle) $\angle a = 140^\circ$ (Corresponding angle) $\angle b = 40^\circ$ (Vertically opposite angle) $\angle f = 140^\circ$ (Vertically opposite angle)		