BCM SCHOOL, BASANT AVENUE, DUGRI, LUDHIANA. **DECEMBER ASSIGNEMENT ANSWER KEY / HINTS (2025-26)** **CLASS- IX (MATHEMATICS)** **TOPIC:CIRCLES**	
SECTION –A (MULTIPLE CHOICE QUESTIONS)	
1.	(d) 150°
2.	(c) 45°
3.	(a)
5.	$\angle AOB = 80°$, $\angle OAB = 50°$
6.	Let ABC be the triangle whose circumcenter is O. So, OB = OC $\angle OBC = \angle OCB = \theta$ (opposite angles of equal sides) In ΔBOC, using the angle sum property of triangle, sum of all angles is 180°, we have: $\angle BOC + \angle OBC + \angle OCB = 180°$ $\Rightarrow \angle BOC + \theta + \theta = 180°$ $\Rightarrow \angle BOC = 180° - 2\theta$ Also, in a circle, angle subtended by an arc at the center is twice the angle subtended by it at any other point in the remaining part of the circle. $\angle BOC = 2\angle BAC$ $\Rightarrow \angle BAC = \frac{1}{2}(\angle BOC)$ $\Rightarrow \angle BAC = \frac{1}{2}(180° - 2\theta)$ $\Rightarrow \angle BAC = (90° - \theta)$ $\Rightarrow \angle BAC + \theta = 90°$ $\Rightarrow \angle BAC + \angle OBC = 90°$ Hence proved.
9.	Given: $y = 32^\circ$ and $z = 40^\circ$ Proof: Let the line segments AD and CE cut each other at P. Since, $\angle APE = \angle CPD$ [Vertically opposite angles] Therefore, $\angle APE = x$ Now, $\angle BCP = \angle CDP + \angle CPD$ [Exterior angle] And $\angle PAB = \angle PEA + \angle APE$ [Exterior angle] $\angle BCP = x + y$ ...(i) and $\angle PAB = x + z$ ...(ii) Since ABCP is a cyclic quadrilateral, $\angle BCP + \angle PAB = 180^\circ$ $\Rightarrow x + y + x + z = 180^\circ$

	$2x + (y + z) = 180^\circ$ ...(iii) $2x + (40° + 32°) = 180^\circ$ $2x = 180 - 72^\circ$ $\Rightarrow 2x = 108^\circ \quad \Rightarrow x = 54^\circ$ Since from (iii), we get $2x + (y + z) = 180^\circ$ and $y + z = 90^\circ$ [Given] Therefore, $2x + 90^\circ = 180^\circ \quad \Rightarrow 2x = 90^\circ$ Therefore, $x = 45^\circ$