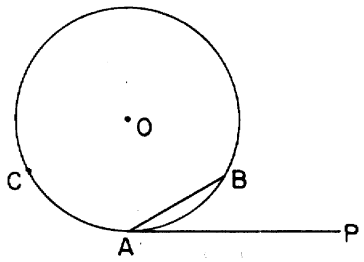
G.G.51: Arcs Determined by Angles 3: Investigate theorems about the arcs determined by angles intersecting a circle when the vertex is on the circle

1 A small fragment of something brittle, such as pottery, is called a shard. The accompanying diagram represents the outline of a shard from a small round plate that was found at an archaeological dig.

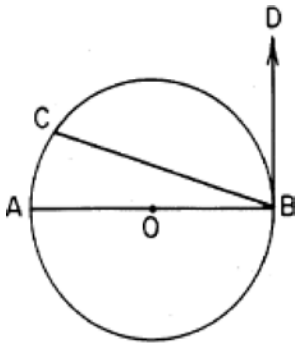
If $\overrightarrow{BC}$ is a tangent to $\overset{\frown}{AB}$ at B and $m\angle ABC = 45$, what is the measure of $\overset{\frown}{AB}$, the outside edge of the shard?

1) 45°
2) 90°
3) 135°
4) 225°

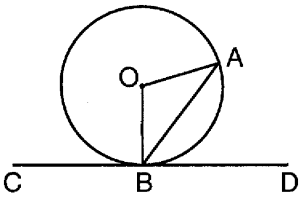
2 In the diagram below, $\overline{PA}$ is tangent to circle O, and $\overline{AB}$ is a chord. If $m\overset{\frown}{ACB} = 300$, find the measure of $\angle BAP$.



3 In the accompanying diagram, $\overrightarrow{BD}$ is tangent to circle O at B, $\overline{BC}$ is a chord, and $\overline{BOA}$ is a diameter. If $m\overset{\frown}{AC} : m\overset{\frown}{CB} = 1:4$, find $m\angle DBC$.



4 In the accompanying diagram, CD is tangent to circle O at B, AO and BO are radii, and chord $\overline{AB}$ is drawn. If $m\angle AOB = 108$, find $m\angle ABD$.



G.G.51: Arcs Determined by Angles 3: Investigate theorems about the arcs determined by angles intersecting a circle when the vertex is on the circle

Answer Section

1 ANS: 2 PTS: 2 REF: 010510b

2 ANS:
30

PTS: 2 REF: 068502siii

3 ANS:
72

PTS: 2 REF: 068810siii

4 ANS:
54

PTS: 2 REF: 019704siii