

Example 8

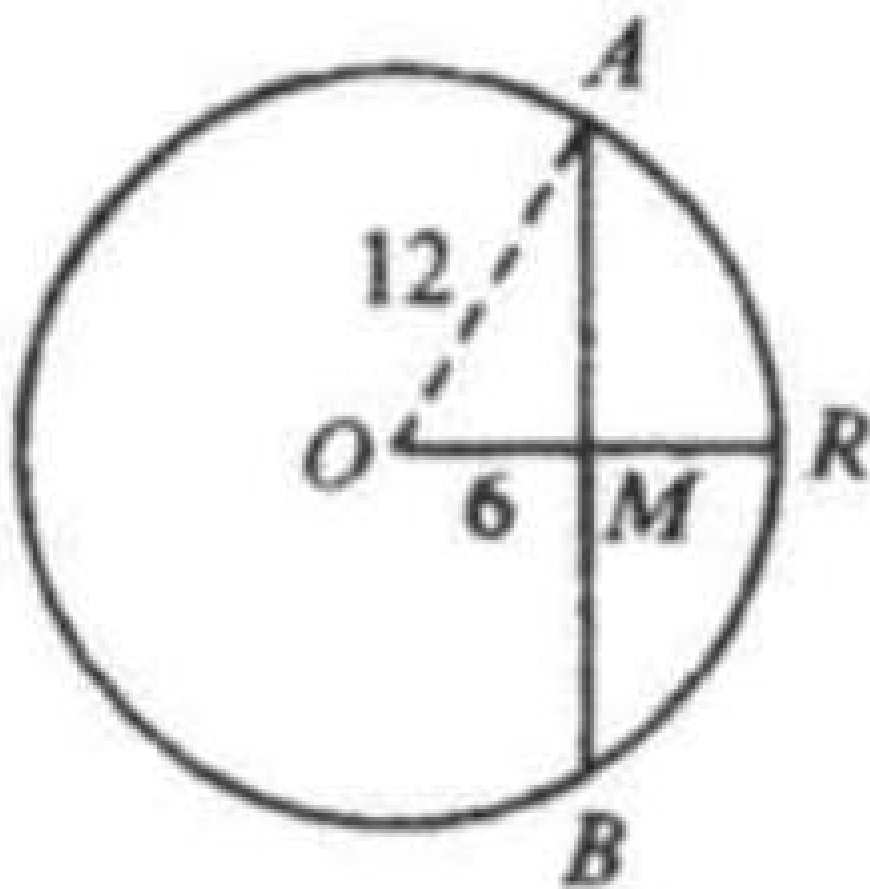
(AMC) A chord which is the perpendicular bisector of radius of length 12 in a circle, has length

- (A) $3\sqrt{3}$
- (B) 27
- (C) $6\sqrt{3}$
- (D) $12\sqrt{3}$
- (E) none of these

Solution: (D).

Let O denote the center of the circle, and let OR and AB be the radius and the chord which are perpendicular bisectors of each other at M . Applying the

Pythagorean theorem to right triangle OMA yields
 $(AM)^2 = (OA)^2 - (OM)^2 = 12^2 - 6^2 = 108$, $AM = 6\sqrt{3}$.



Thus the required chord has length $12\sqrt{3}$.