

Problem 8

Problem

Find the length of the chord which is the perpendicular bisector of radius of length 24 in a circle.

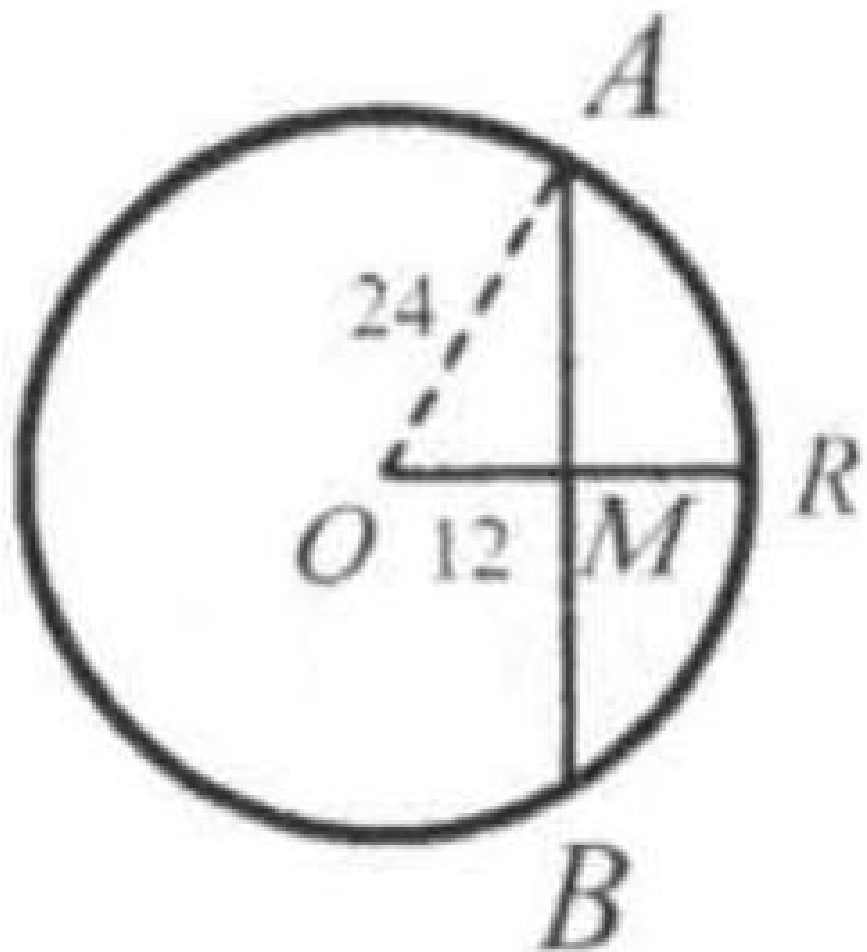
- (A) $6\sqrt{3}$
- (B) 54
- (C) $12\sqrt{3}$
- (D) $24\sqrt{3}$
- (E) $24\sqrt{2}$

Solution

(D).

O is the center of the circle and OR is the radius. AB is the chord that is perpendicular bisectors of OR , and AB and AR bisect each other at M .

Applying the Pythagorean theorem to right triangle OMA , we get
 $(AM)^2 = (OA)^2 - (OM)^2 = 24^2 - 12^2 = 432$, $AM = 12\sqrt{3}$.



Thus the length of the chord is $2 \times 12\sqrt{3} = 24\sqrt{3}$.