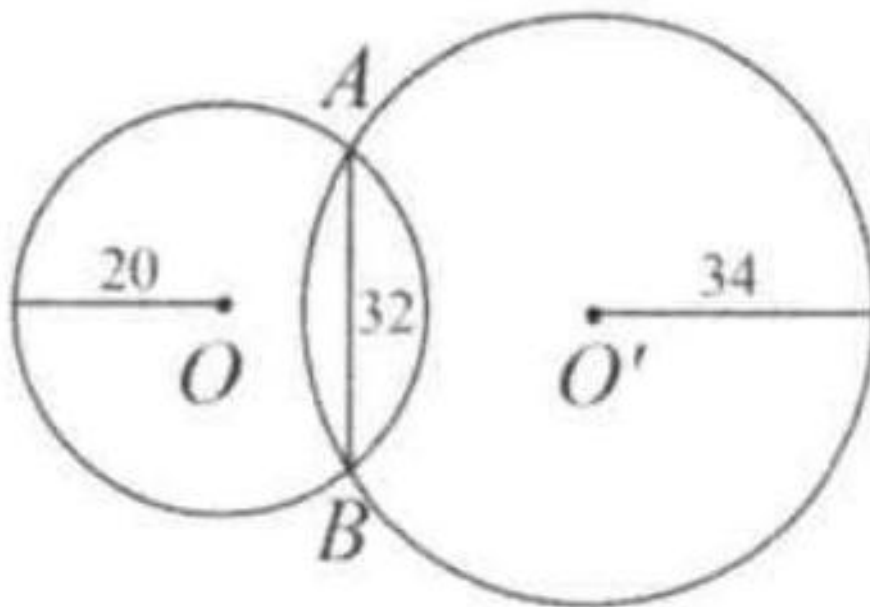


## Problem

As shown in the figure,  $AB$  is the common chord with the length 32 of two intersecting circles  $O$  and  $O'$ . The radii are 20 feet and 34 feet, respectively.

Find the distance between the centers of the circles.

- (A) 54
- (B) 42
- (C)  $\sqrt{1763}$
- (D) 30
- (E) 40



## Solution

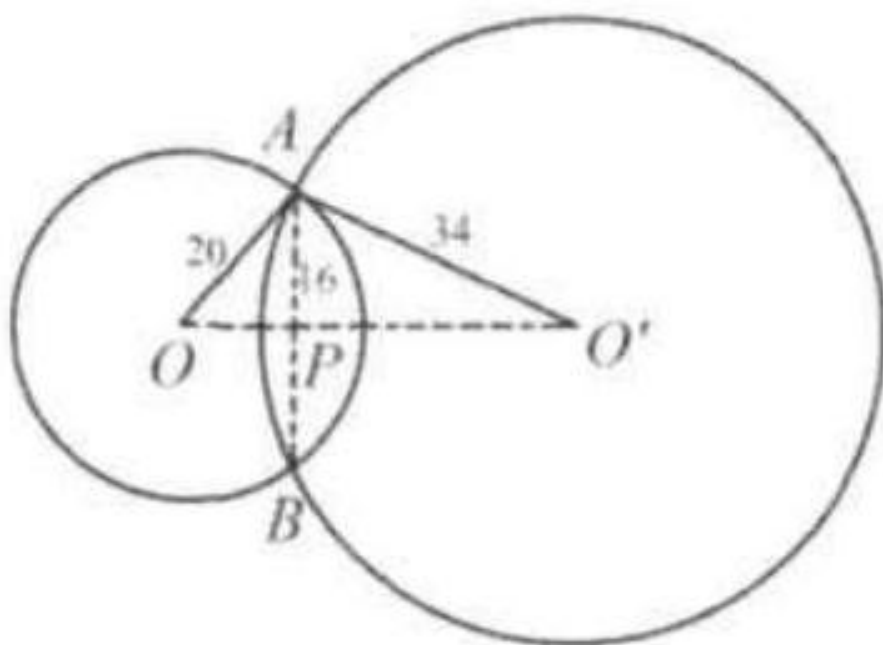
(B).

Let the midpoint of the chord  $AB$  be  $P$ . Applying the Pythagorean Theorem applied to right triangles  $OPA$  and  $O'PA$  gives

$$OP^2 = OA^2 - AP^2 = 20^2 - 16^2 = 144, \quad OP = 12, \text{ And}$$

$$O'P^2 = O'A^2 - AP^2 = 34^2 - 16^2 = 900, \quad O'P = 30.$$

The distance between the centers of the circles is  $30 + 12 =$



42.