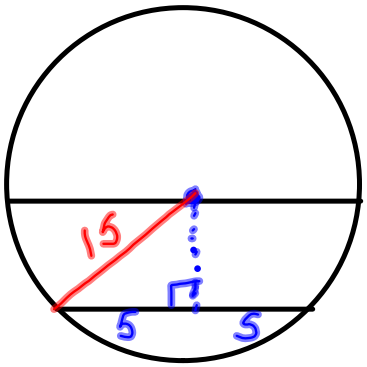
Warm-Up

A circle with diameter of 30 cm has a chord with length 10 cm.
How far from the centre of the circle is the chord?
Draw a diagram to support your solution.



$a^2 = c^2 - b^2$

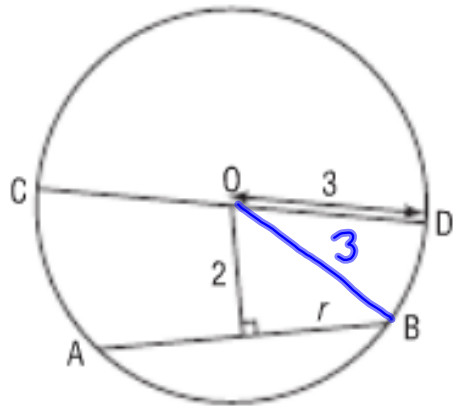
$a^2 = 15^2 - 5^2$

$a^2 = 225 - 25$

$a^2 = 200$

$a = 14.14$

a)



2.2

$a^2 = c^2 - b^2$

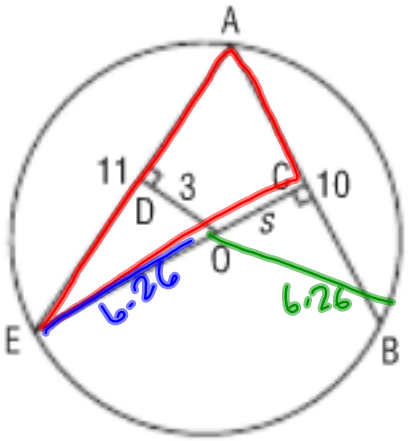
$a^2 = 3^2 - 2^2$

$a^2 = 9 - 4$

$a^2 = 5$

$a = 2.2$

a)



3.8

$a^2 = c^2 - b^2$

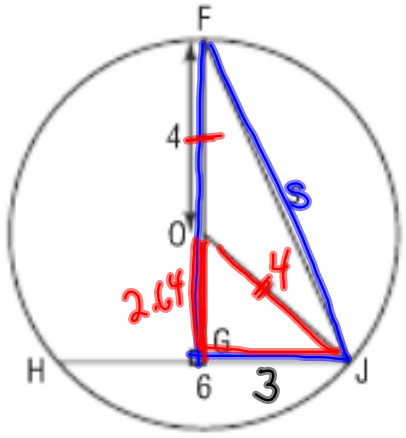
$= 6.26^2 - 5^2$

$39.18 - 25$

$a^2 = 14.18$

$a = 3.8$

b)



7.3

$c^2 = a^2 + b^2$

$= 3^2 + 6.64^2$

$= 9 + 44.0896$

$c^2 = 53.0896$

$c = 7.3$

$a^2 = c^2 - b^2$

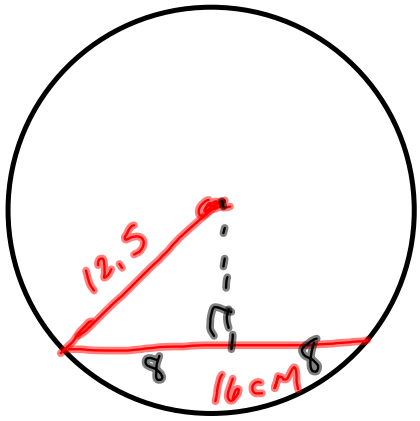
$= 4^2 - 3^2$

$= 16 - 9$

$a^2 = 7$

$a = 2.64$

11. A circle has diameter 25 cm. How far from the centre of this circle is a chord 16 cm long? Justify your answer.



9.6

$a^2 = c^2 - b^2$

$= 12.5^2 - 8^2$

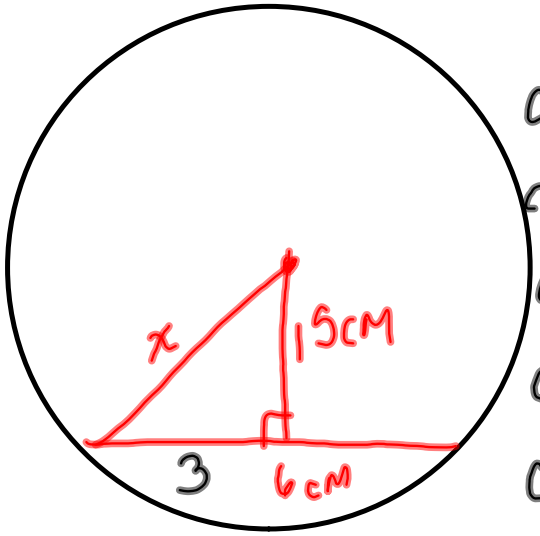
$= 156.25 - 64$

$= 92.25$

$a = 9.6$

14. A chord is 6 cm long. It is 15 cm from the centre of a circle. What is the radius of the circle?

15.3



$c^2 = a^2 + b^2$

$c^2 = 15^2 + 3^2$

$c^2 = 225 + 9$

$c^2 = 234$

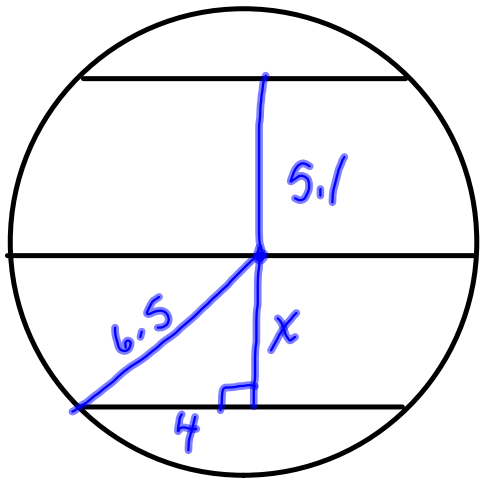
$c = 15.3$

15. A circle has diameter 13 cm. In the circle, each of two chords is 8 cm long.

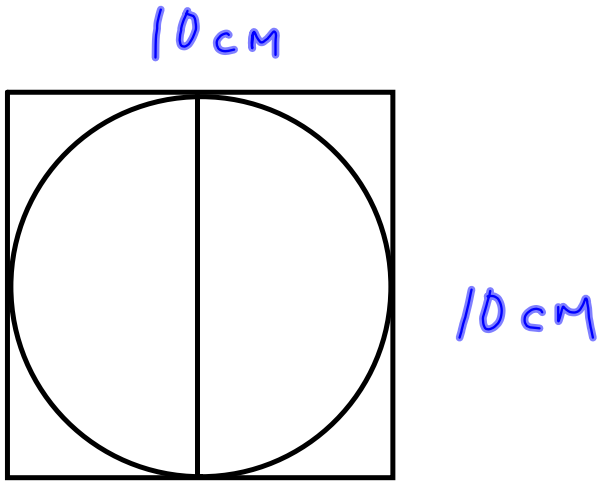
a) What is the shortest distance from each chord to the centre of the circle?

b) What do you notice about these congruent chords?

5.1



$x^2 = c^2 - b^2$


10 cm
10 cm

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Sketch diagrams