12.2 Chords and Arcs
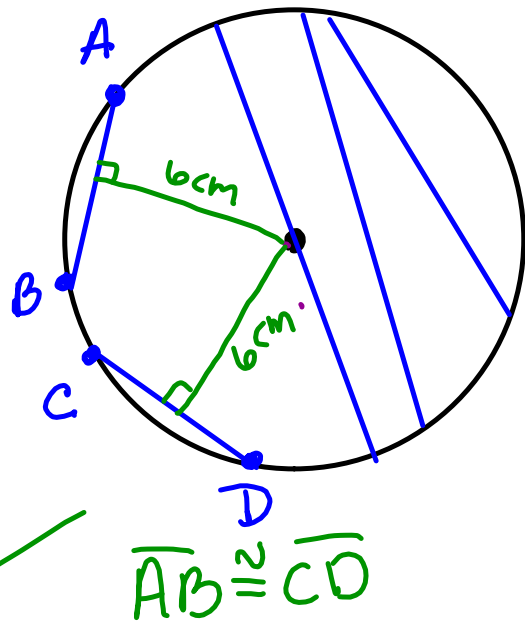
Chord : a line segment whose endpoints are on a circle.
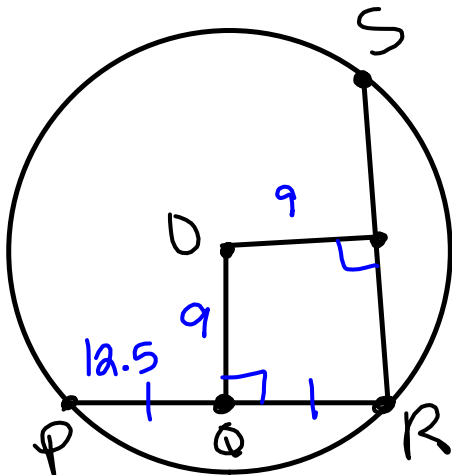
Property
* Chords equidistant from the center are congruent.

6cm

6cm

$\overline{AB} \cong \overline{CD}$

Ex 1 |
What is the length of $\overline{RS}$?

9

9

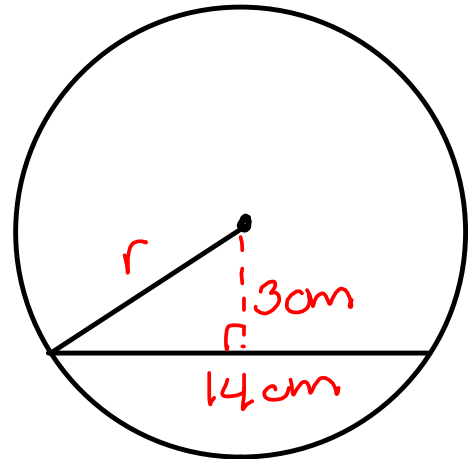12.5

$\overline{RS} \cong \overline{RP}$

$RP = 12.5 + 12.5 = 25 = RS$

Ex2) Find the radius.

$3^2 + 7^2 = r^2$

$9 + 49 = r^2$

$58 = r^2$

$r = \sqrt{58}$ or 7.6 cm

Ex3) What is the value of y?

$11^2 + y^2 = 15^2$

$121 + y^2 = 225$

$-121 \qquad -121$

$y^2 = 104$
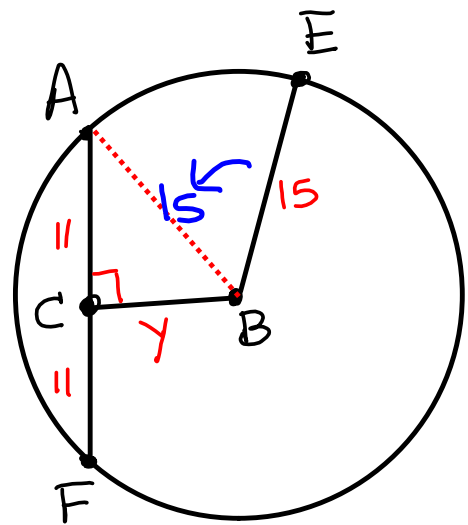
$y = \sqrt{104}$

$2 \cdot 52$

$2 \cdot 26$

$2 \cdot 13$

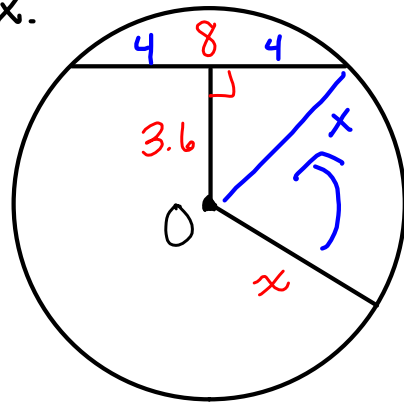$y = \sqrt{104} = \sqrt{2} \cdot \sqrt{2} \cdot \sqrt{2} \cdot \sqrt{13} = 2\sqrt{26}$ or 10.2

$2\sqrt{26}$

Ex 4) Find the value of x.

$4^2 + 3.6^2 = x^2$

$16 + 12.96 = x^2$

$28.96 = x^2$

$5.4 = x$

4 8 4

3.6

O

x

x

Ex 5)

The endpoints of the chord are the points where x=3 intersects circle $x^2+y^2=25$. What is the length of the chord? Round to the nearest tenth.
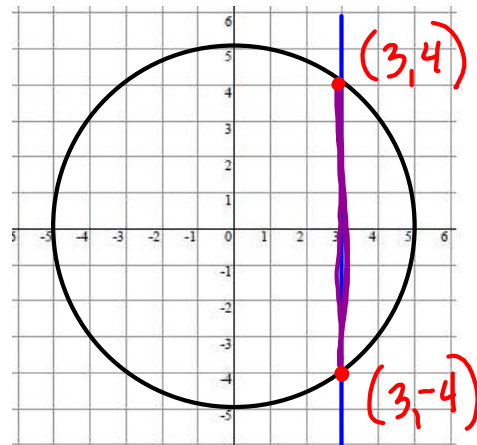
$X = 3$

$X^2 + Y^2 = 25$ plug-in

$3^2 + y^2 = 25$

$9 + y^2 = 25$

$-9 \qquad -9$

$y^2 = 16$

$y = \pm 4$

When X = 3, Y = +4 and -4

Length is in fact 8

(3, 4)

(3, -4)

by looks I would guess length = 8