Circle Properties
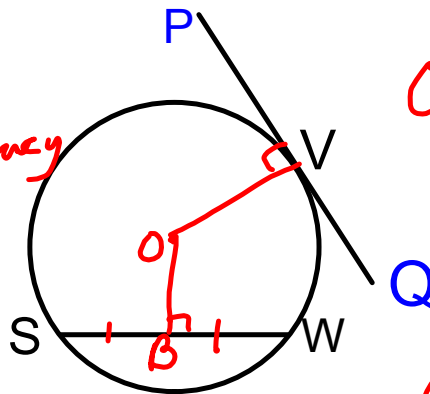
A line that intersects a circle at only **ONE POINT** is a tangent to the circle

The point where the tangent intersects the circle is the point of tangency.

Point V → point of tangency

SW → chord

PQ → tangent

OV → Radius
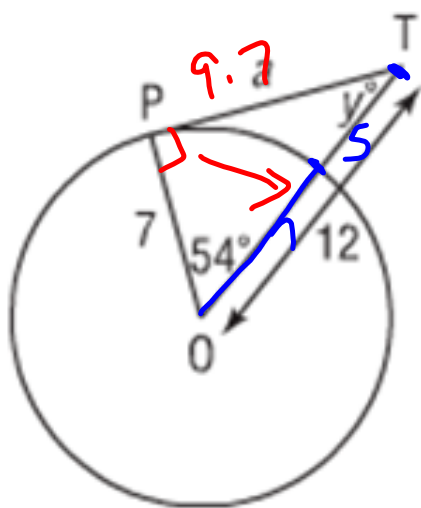
OB → perpendicular bissector

Circle Properties

Solve for <PTO

$$54° + 90° + \boxed{36°} = 180°$$

Solve for **a**

$$c^2 = a^2 + b^2$$
$$12^2 = 7^2 + b^2$$
$$144 = 49 + b^2$$
$$b^2 = 95$$
$$b = 9.7$$

Solve for x and y

Diagram: Circle with center O. Points P and Q on circle, external point R. Segments labeled: $OP = 5$, $PR = 12$, segment $= 13$, $x°$ at O, $23°$ at R, $OQ = 5$, and y along QR. Right angle marked at P.
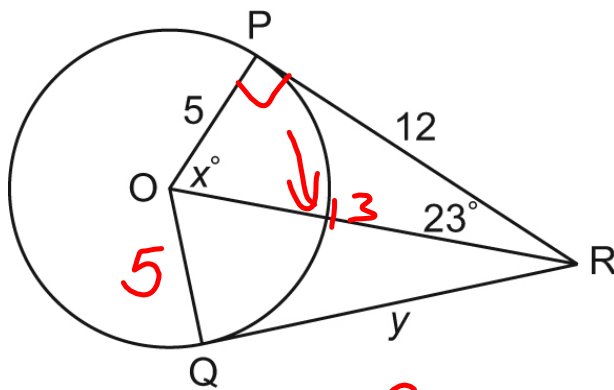
Use 3 Letters to name the angle

$23 + 90 + 67° = 180°$

$\angle POR = 67°$

$$c^2 = a^2 + b^2$$
$$c^2 = 5^2 + 12^2$$
$$c^2 = 25 + 144$$
$$c^2 = 169$$
$$c = 13$$

Find y

$$c^2 = a^2 + b^2$$
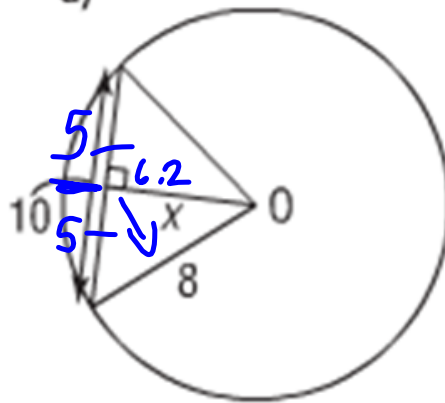$$13^2 = 5^2 + b^2$$
$$169 = 25 + b^2$$
$$b^2 = 144$$
$$b = 12$$

Solve for x:

A line segment that joins two points on a circle is a **CHORD**.
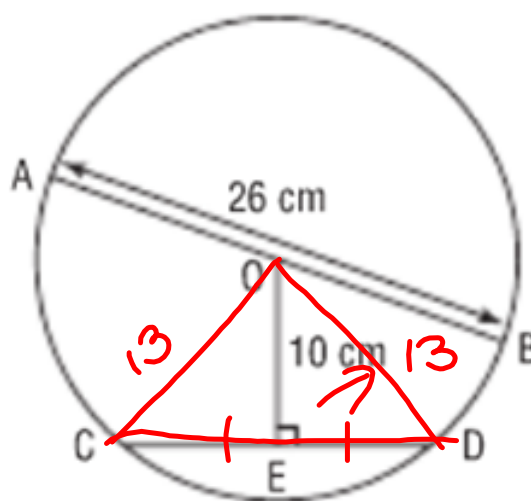
a)

$$C^2 = a^2 + b^2$$

$$8^2 = 5^2 + b^2$$

$$64 = 25 + b^2$$

$$b^2 = 39$$

$$b = 6.2$$

Solve for ED

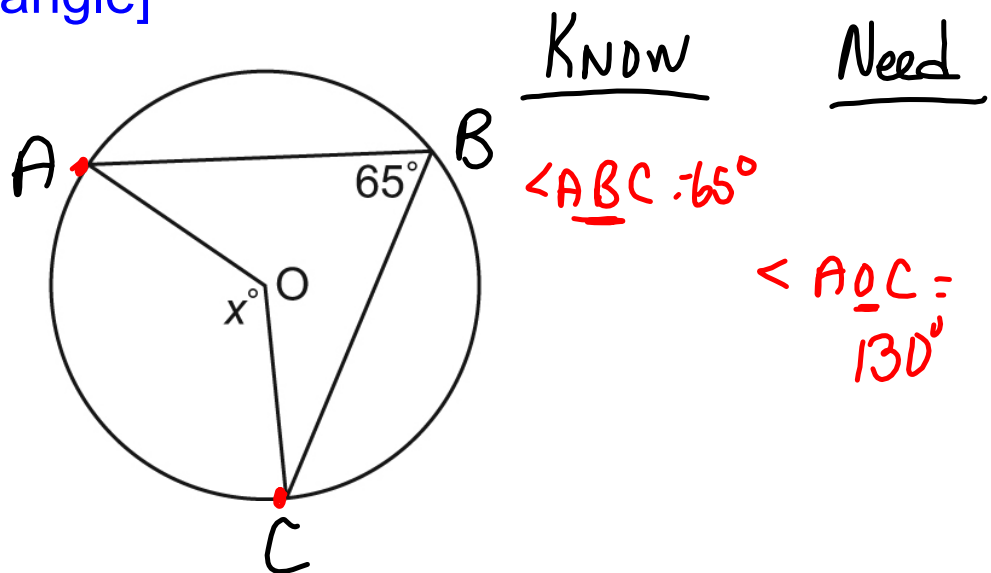$$c^2 = a^2 + b^2$$

$$13^2 = 10^2 + b^2$$

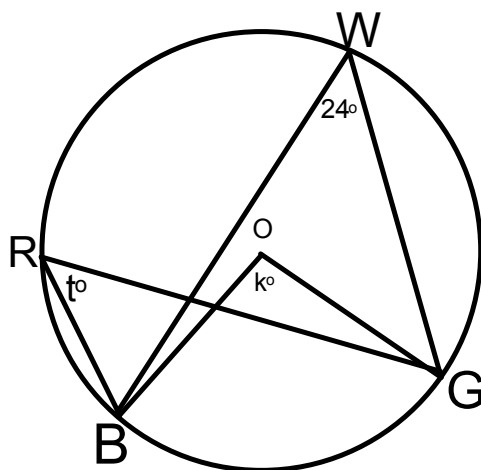$$169 = 100 + b^2$$

$$b^2 = 69$$

$$b = 8.3$$

Inscribed Angles

[The inscribed angle is half the size of the central angle]

KNOW

$\angle ABC = 65°$

Need

$\angle AOC = 130°$

Inscribed Angles Property

In a circle, all of the inscribed angles subtended by the
same arc are congruent [equal]

KNOW

Need

$<BWG : 24°$

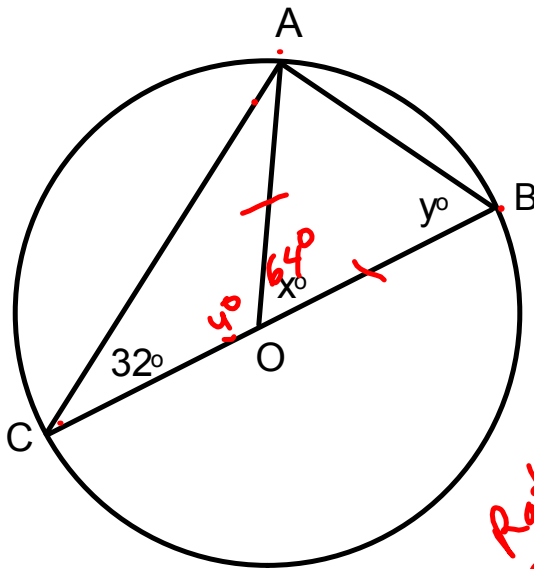$<BRG = 24°$

$<BUG = 48°$

Angles in a Semicircle Property

A

B

y°

64°

40°

x°

32°

O

C

KNOW

Need

$\underline{ACB} = 32^\circ$

$\angle ABC = 58^\circ$

$\angle \underline{AOB} = 64^\circ$

Radius   Radius