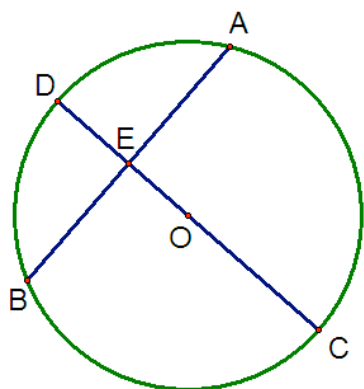


In the diagram below, chord AB is perpendicular to diameter CD . If $AB = 48$ and $EO = 10$, determine the length of DE .



$$OC = \text{radius}$$

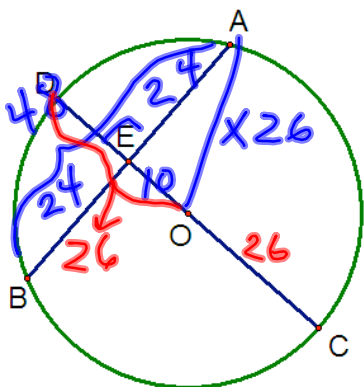
$$OD = \text{radius}$$

$$OA = \text{radius}$$

All radii are \cong .

If a chord is perpendicular to the diameter in a circle,
then the diameter bisects the chord.

In the diagram below, chord AB is perpendicular to diameter CD. If $AB = 48$ and $EO = 10$, determine the length of DE.



$$10^2 + 24^2 = x^2$$

$$100 + 576 = x^2$$

$$676 = x^2$$

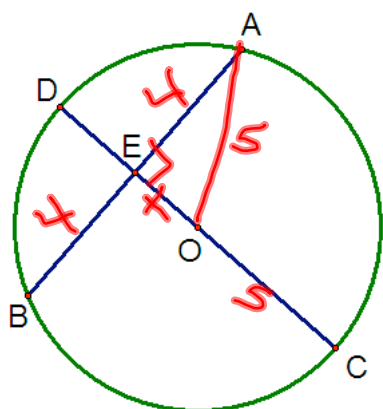
$$26 = x$$

$$OD - EO = ED$$

$$26 - 10 = 16$$

$$ED = 16$$

If $AB \perp CD$, $CD = 10$, $AB = 8$, what is the length of DE ?



$$x^2 + 4^2 = 5^2$$

$$x^2 + 16 = 25$$

$$x^2 = 9$$

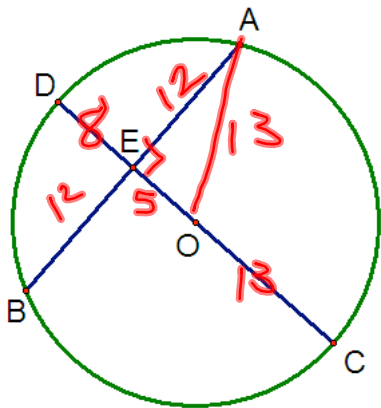
$$x = 3 = EO$$

$$OD - EO = DE$$

$$5 - 3 = 2$$

$$\boxed{DE = 2}$$

If $AB \perp CD$, $ED = 8$, $OC = 13$, what is the length of AB ?



$$AB = 12 + 12 = 24$$

$$OD - DE = EO$$

$$13 - 8 = 5$$

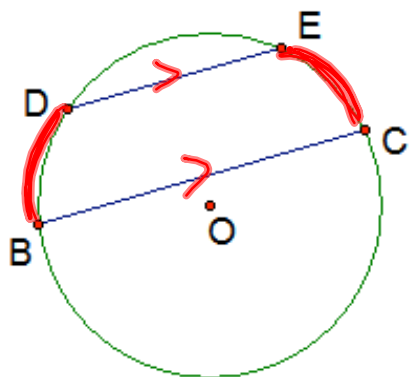
$$5^2 + AE^2 = 13^2$$

$$25 + AE^2 = 169$$

$$AE^2 = 144$$

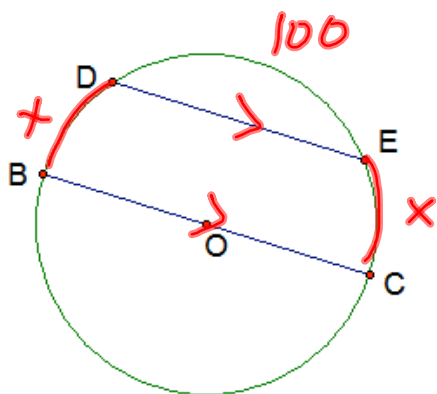
$$AE = 12$$

Parallel chords intersect congruent arcs



$$\widehat{DB} \cong \widehat{EC}$$

In circle O below, $DE \parallel BC$. If arc $DE = 100$, what is the measure of arc DB ?



$$x + 100 + x = 180$$

$$2x + 100 = 180$$

$$2x = 80$$

$$x = 40$$

