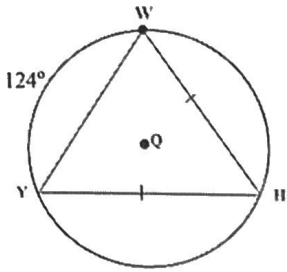
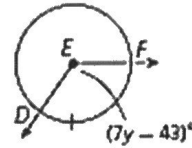
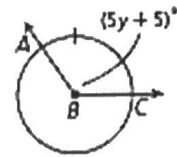


Example: Find the measure of arc HY and HYW.

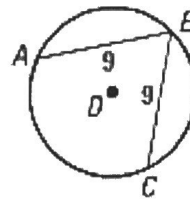


Example: Find the measure of angle DEF.



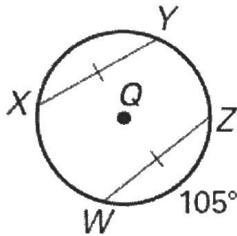
Example: Use the diagram of $\odot D$.

- If $m\widehat{AB} = 110^\circ$, find $m\widehat{BC}$.
- If $m\widehat{AC} = 150^\circ$, find $m\widehat{AB}$.

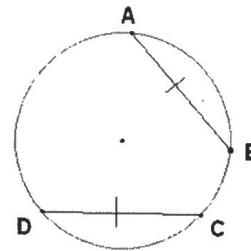


Try:

1. Find the measure of arc YZ if the measure of arc XW = 95°

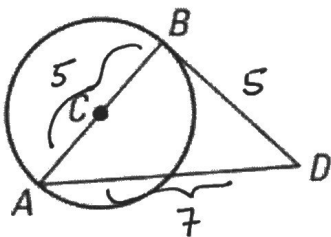


2. Given $m\widehat{AB} = 45^\circ$ and $m\widehat{BC} = 22^\circ$.



*** Skills Practice**

1. In the diagram below, $AB = BD = 5$ and $AD = 7$. Is \overline{BD} tangent to $\odot C$? Explain.



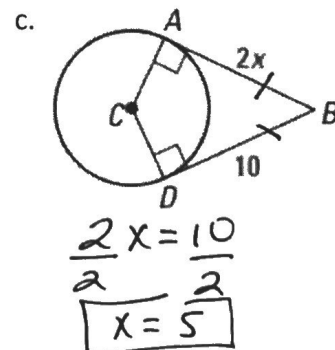
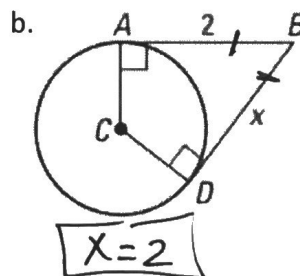
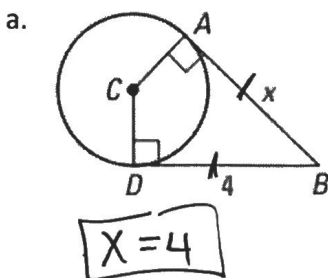
$$5^2 + 5^2 = 7^2$$

$$25 + 25 = 49$$

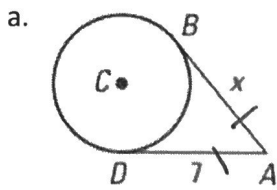
$$50 \neq 49$$

No, \overline{BD} is not tangent b/c it is not a 90° angle. Pythagorean Thm does not work.

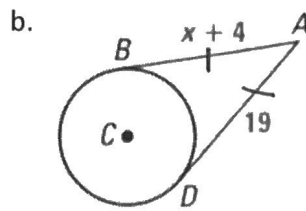
2. \overline{AB} is tangent to $\odot C$ at A and \overline{DB} is tangent to $\odot C$ at D. Find the value of x.



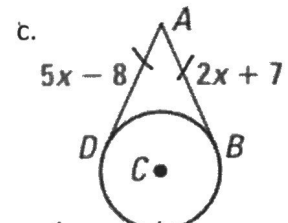
3. \overline{AB} and \overline{AD} are tangent to $\odot C$. Find the value of x .



$$\boxed{x=7}$$

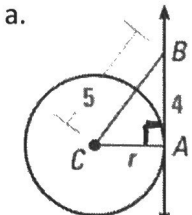


$$\begin{array}{r} x+4=19 \\ -4 \quad -4 \\ \hline \boxed{x=15} \end{array}$$

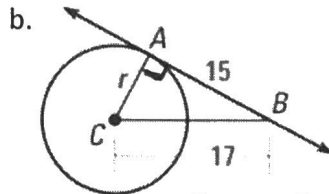


$$\begin{array}{r} 5x-8=2x+7 \\ -2x \quad -2x \\ \hline 3x=15 \\ \boxed{x=5} \end{array}$$

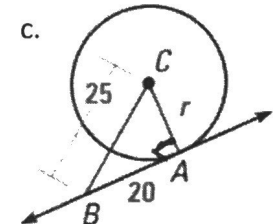
4. \overline{AB} is tangent to $\odot C$. Find the value of r .



$$\begin{array}{l} r^2 + 4^2 = 5^2 \\ r^2 + 16 = 25 \\ \boxed{r=3} \end{array}$$

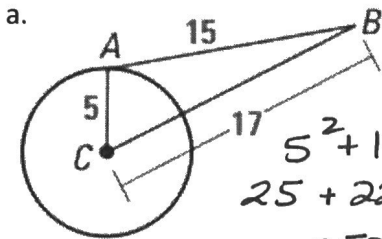


$$\begin{array}{l} r^2 + 15^2 = 17^2 \\ r^2 + 225 = 289 \\ r^2 = 64 \\ \boxed{r=8} \end{array}$$

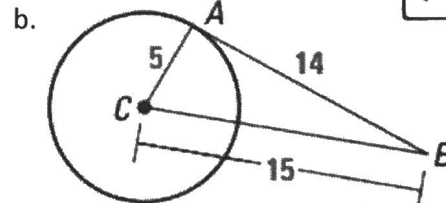


$$\begin{array}{l} r^2 + 20^2 = 25^2 \\ r^2 + 400 = 625 \\ r^2 = 225 \\ \boxed{r=15} \end{array}$$

5. Tell whether \overline{AB} is tangent to $\odot C$. Explain your reasoning.



$$\begin{array}{l} 5^2 + 15^2 = 17^2 \\ 25 + 225 = 289 \\ 250 \neq 289 \\ \text{no, Pythagorean Thm doesn't work.} \end{array}$$



$$\begin{array}{l} 5^2 + 14^2 = 15^2 \\ 25 + 196 = 225 \\ 221 \neq 225 \end{array}$$

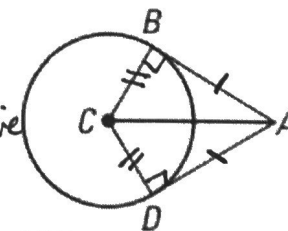
No, Pythag. Thm doesn't work.

6. \overline{AB} and \overline{AD} are tangent to $\odot C$.

a. Name all congruent segments

$$\begin{array}{l} \overline{BC} \cong \overline{DC} \text{ radii} \\ \overline{AB} \cong \overline{AD} \text{ tangents} \end{array}$$

$$\begin{array}{l} \overline{CA} \cong \overline{CA} \\ \text{Reflexive Prop.} \end{array}$$



b. Name all congruent angles.

$$\angle B \cong \angle D \text{ right } \angle \text{'s}$$

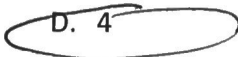
$$\angle BCA \cong \angle DCA, \angle BAC \cong \angle DAC \text{ b/c } \underline{\underline{SSS}}$$

c. Name two congruent triangles.

$$\triangle ABC \cong \triangle ADC$$

7. MULTIPLE CHOICE: In the diagram below, \overline{EF} and \overline{EG} are tangent to $\odot C$. What is the value of x ?

- A. -4
- B. -1
- C. 1
- D. 4



$$\begin{array}{r} 2x+3=4x-5 \\ +5 \quad -2x \\ \hline 8=2x \\ \frac{8}{2}=\frac{2x}{2} \\ 4=x \end{array}$$

