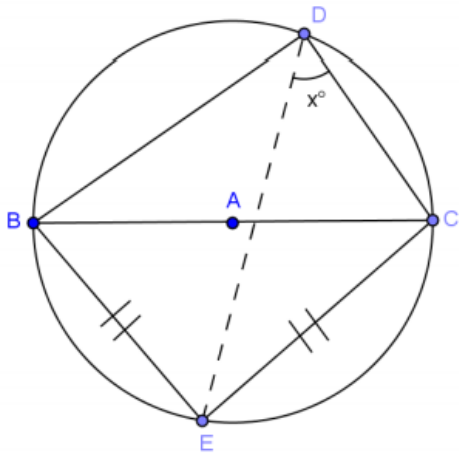Some circle practice problems
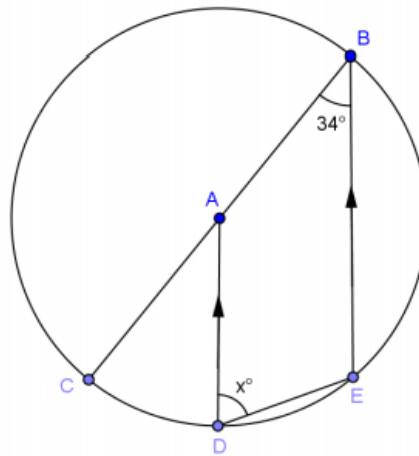From EngageNY:

Find the value of x in each figure below, and describe how you arrived at the answer.
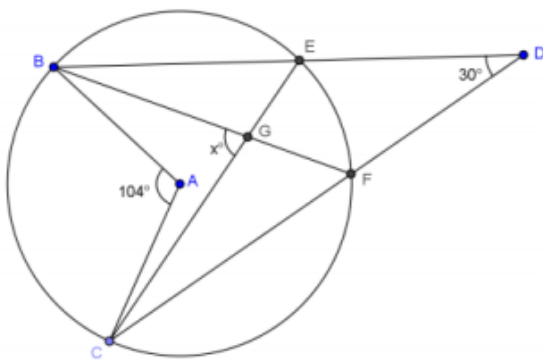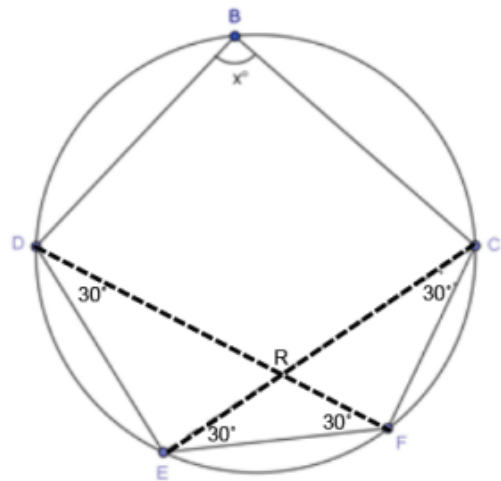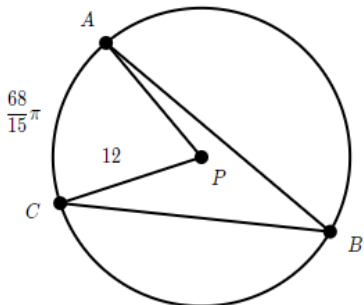
1.   **Hint: Thales' theorem**

2.

3.

4.

5. From Khan Academy:

In the figure below, $\angle ABC$ is inscribed in circle P. The length of $\overline{PC}$ is 12 units. The arc length of $\overset{\frown}{AC}$ is $\dfrac{68}{15}\pi$.
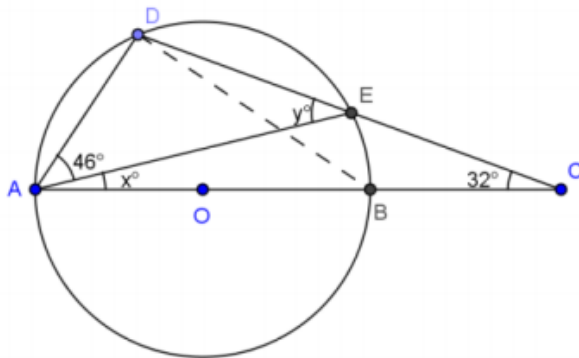

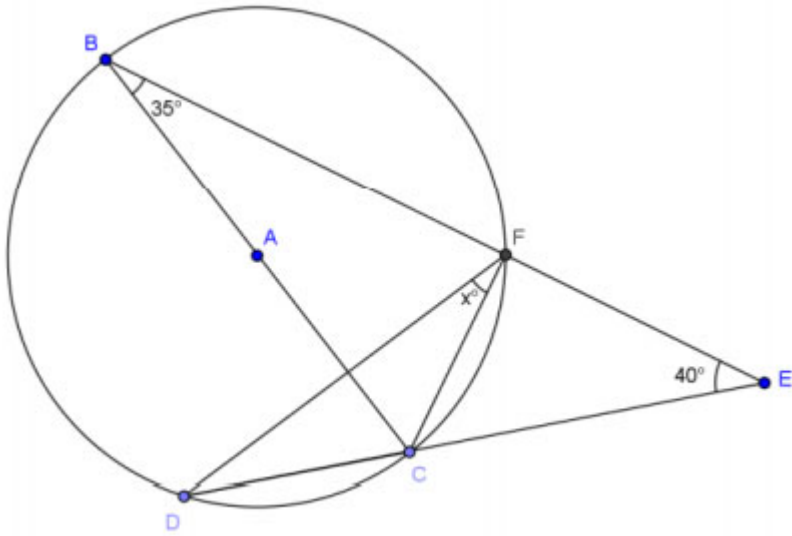**What is the measure of $\angle ABC$ in degrees?**
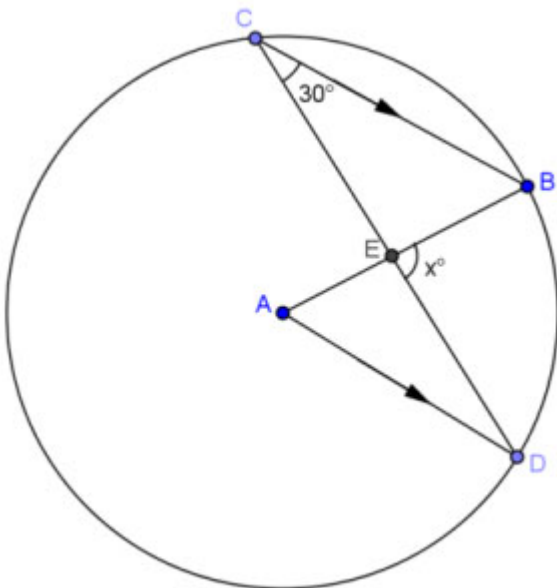
6. Also from EngageNY:

Opening Exercise

In a circle, a chord $\overline{DE}$ and a diameter $\overline{AB}$ are extended outside of the circle to meet at point C. If $m\angle DAE = 46°$, and $m\angle DCA = 32°$, find $m\angle DEA$.
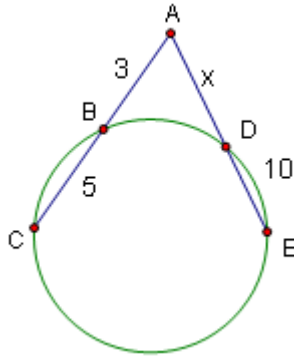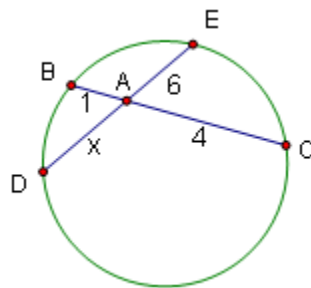

7.

8.

Problem 1
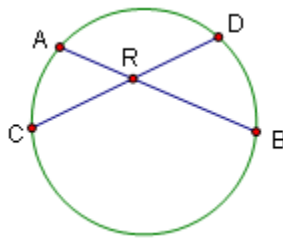
Find the value of x in the following diagram:

Problem 2

Find the value of x in the following diagram:

Problem 3

In a circle, chords AB and CD intersect at R. If $AR : BR = 1 : 4$ and $CR : DR = 4 : 9$, find the ratio $AB : CD$.

Problem 4

Chords AB and CD of a given circle are perpendicular to each other and intersect at a right angle at point E. Given that $BE = 16$, $DE = 4$, and $AD = 5$, find CE.

Problem 1

Two tangents from an external point P are drawn to a circle and intersect it at A and B. A third tangent meets the circle at T, and the tangents $\overrightarrow{PA}$ and $\overrightarrow{PB}$ at points Q and R, respectively (this means that T is on the minor arc AB). Find the perimeter of $\triangle PQR$.

Problem 2

Square $ABCD$ of side length 10 has a circle inscribed in it. Let M be the midpoint of $\overline{AB}$. Find the length of that portion of the segment $\overline{MC}$ that lies outside of the circle.