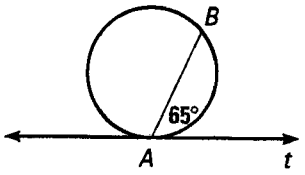
Name_____ Date_____

12.5 - Angles of Chords, Secants, and Tangents

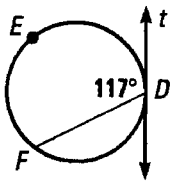
If *t* is the tangent to the circle, find the missing value.

1) $m\overset{\frown}{AB}$



130°

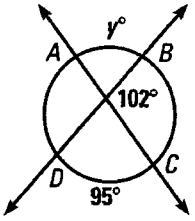
2) $m\overset{\frown}{DEF}$



234°

Find the missing degree value.

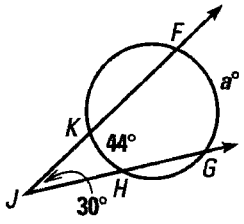
3)



$78 = \frac{1}{2}(95+y)$

$61° = y$

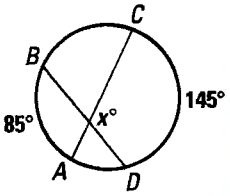
4)



$30 = \frac{1}{2}(a-44)$

$104° = a$

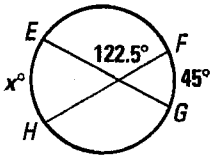
5)



$x = \frac{1}{2}(85+145)$

$x = 115°$

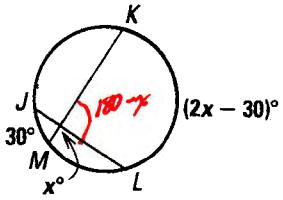
6)



$57.5 = \frac{1}{2}(x+45)$

$70° = x$

7)



$180 - x = \frac{1}{2}(2x - 30 + 30)$

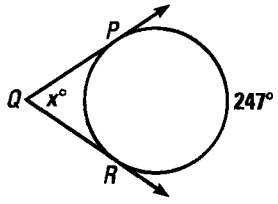
$180 - x = \frac{1}{2}(2x)$

$180x = x$

$180 = 2x$

$90° = x$

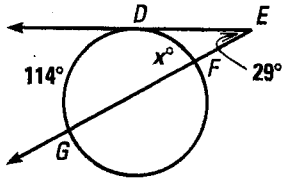
8)



$x = \frac{1}{2}(247-113)$

$x = 67°$

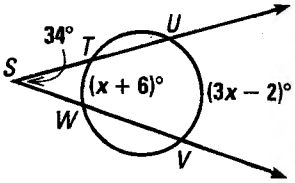
9)



$29° = \frac{1}{2}(114-x)$

56

10)



$34 = \frac{1}{2}[3x-2-(x+6)]$

$34 = \frac{1}{2}(3x-2-x-6)$

$34 = \frac{1}{2}(2x-8)$

$38° = x$

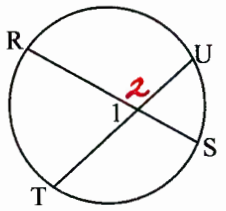
Find the missing length value.

11) If $m\overset{\frown}{RT} = 80°$ and $m\overset{\frown}{US} = 40°$, then $m\angle 1 =$ 60°

If $m\overset{\frown}{RU} = 130°$ and $m\overset{\frown}{TS} = 100°$, then $m\angle 1 =$ 65°

$m\angle 2 = \frac{1}{2}(130 + 100)$

$m\angle 2 = 115°$



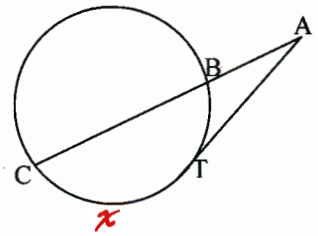
12) $\overline{AT}$ is a tangent.

If $m\overset{\frown}{CT} = 110°$ and $m\overset{\frown}{BT} = 50°$, then $m\angle A =$ 30°

If $m\angle A = 28°$ and $m\overset{\frown}{BT} = 46°$, then $m\overset{\frown}{CT} =$ 102°

$28 = \frac{1}{2}(x - 46)$

$102° = x$

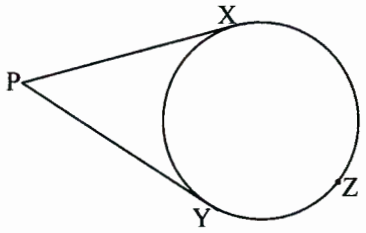


13) $\overline{PX}$ and $\overline{PY}$ are tangents.

If $m\overset{\frown}{XZY} = 250°$, then $m\angle P =$ 70°

If $m\overset{\frown}{XY} = 90°$, then $m\angle P =$ 90°

$m\angle P = \frac{1}{2}(270 - 90)$



14) $\overline{BZ}$ is tangent to circle O; $\overline{AC}$ is a diameter;
$m\overset{\frown}{BC} = 90°$; $m\overset{\frown}{CD} = 30°$, and $m\overset{\frown}{DE} = 20°$.

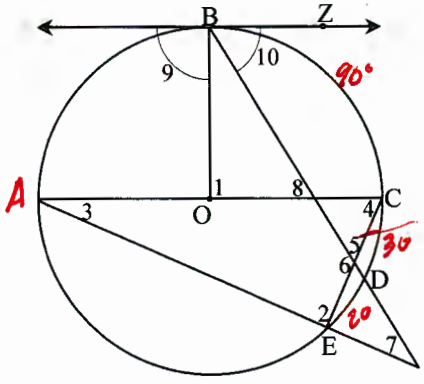
$m\angle 1 =$ 90° $\quad m\angle 6 =$ 125°

$m\angle 2 =$ 90° $\quad m\angle 7 =$ 35°

$m\angle 3 =$ 75° $\quad m\angle 8 =$ 60°

$m\angle 4 =$ 65° $\quad m\angle 9 =$ 90°

$m\angle 5 =$ 55° $\quad m\angle 10 =$ 60°



$m\angle 5 = \frac{1}{2}(20 + 90)$

$m\angle 5 = 55°$

$m\angle 7 = \frac{1}{2}(90 - 20)$

$m\angle 7 = 35°$