Name: ANSWER KEY

Monica

Geometry Period:_____

Date:_____

Classwork – Unit 6

Directions: Answer all of the questions below. Be sure to show all of your work!

1) Which set of numbers could be the lengths of the sides of a right triangle?

1) $\{10, 24, 26\}$ ✓

$10^2 + 24^2 = 26^2$

$100 + 576 = 676$

$676 = 676$ ✓

2) $\{12, 16, 30\}$

$12^2 + 16^2 = 30^2$

$144 + 256 = 900$

$400 \neq 900$

3) $\{3, 4, 6\}$

$3^2 + 4^2 = 6^2$

$9 + 16 = 36$

$25 \neq 36$

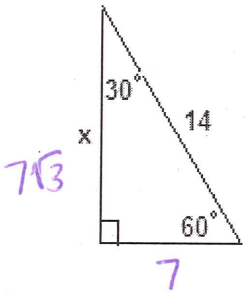
4) $\{4, 7, 8\}$

$4^2 + 7^2 = 8^2$

$16 + 49 = 64$

$65 \neq 64$

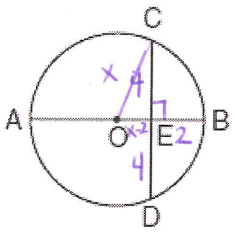
2) Determine the value of x in the triangle below.



$7\sqrt{3}$

$x = 7\sqrt{3}$ (30-60-90 special right Δ)

3) In the accompanying diagram of circle *O*, diameter $\overline{AB}$ is perpendicular to chord $\overline{CD}$ at *E*, $CD = 8$, and $EB = 2$. What is the length of the diameter of circle *O*?



$(x-2)^2 + 4^2 = x^2$

$x^2 - 4x + 4 + 16 = x^2$

$x^2 - 4x + 20 = x^2$

$-x^2 \quad -x^2$

$-4x + 20 = 0$

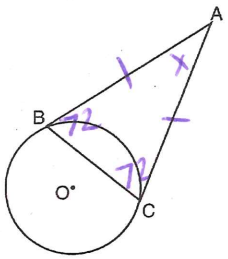
$+4x \quad +4x$

$\frac{20}{4} = \frac{4x}{4}$

$x = 5$

Diameter = 10

4) In the accompanying diagram, $\overline{AB}$ and $\overline{AC}$ are tangents to circle *O*, and chord $\overline{BC}$ is drawn. If $m\angle ABC = 72$, what is $m\angle A$?

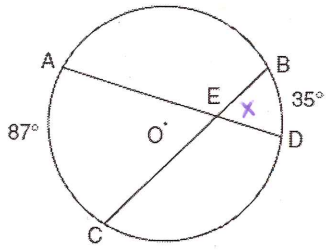


$x + 72 + 72 = 180$

$x + 144 = 180$

$x = 36$

5) In the diagram below of circle O, chords $\overline{AD}$ and $\overline{BC}$ intersect at E, $m\overset{\frown}{AC} = 87$, and $m\overset{\frown}{BD} = 35$. What is the degree measure of $\angle CEA$?

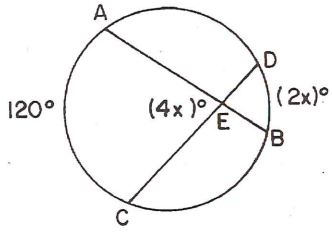


$\frac{87+35}{2} = x$

$\frac{122}{2} = x$

$\boxed{61 = x}$

6) In the diagram below, chords $\overline{AB}$ and $\overline{CD}$ intersect at E. If $m\angle AEC = 4x$, $m\overset{\frown}{AC} = 120$, and $m\overset{\frown}{DB} = 2x$, what is the value of x?



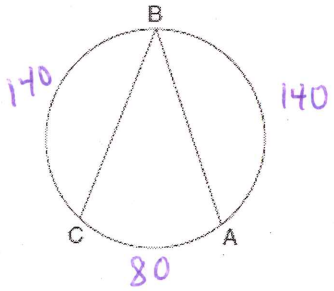
$\frac{120+2x}{2} = 4x \cdot 2$

$120 + 2x = 8x$

$120 = 6x$

$\boxed{20 = x}$

7) The new corporate logo created by the design engineers at Magic Motors is shown in the accompanying diagram. If chords $\overline{BA}$ and $\overline{BC}$ are congruent and $m\overset{\frown}{BC} = 140$, what is $m\angle B$?



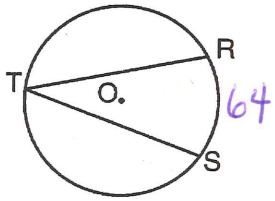
$\overset{\frown}{AC} = 360 - 280$

$\overset{\frown}{AC} = 80$

$\angle B = \frac{1}{2}(80)$

$\boxed{\angle B = 40}$

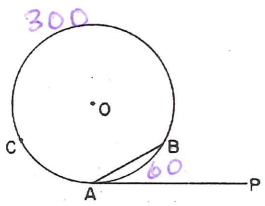
8) In the accompanying diagram of circle O, the measure of $\overset{\frown}{RS}$ is 64º. What is $m\angle RTS$?



$\angle RTS = \frac{1}{2}(64)$

$\boxed{\angle RTS = 32}$

9) In the diagram below, $\overline{PA}$ is tangent to circle O, and $\overline{AB}$ is a chord. If $m\overset{\frown}{ACB} = 300$, find the measure of $\angle BAP$.

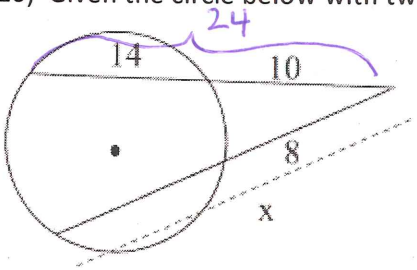


$\overset{\frown}{AB} = 360 - 300 = 60$

$\angle BAP = \frac{1}{2}(60)$

$\boxed{\angle BAP = 30}$

10) Given the circle below with two secants, determine the value of x.

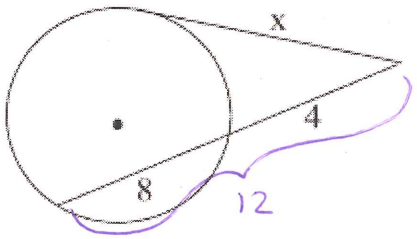


$24 \cdot 10 = 8 \cdot x$

$240 = 8x$

$\boxed{30 = x}$

11) Given the circle with a tangent and a secant, determine the value of x.



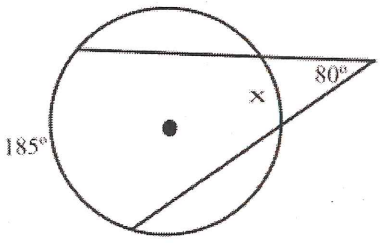
$12 \cdot 4 = x^2$

$\sqrt{48} = \sqrt{x^2}$

$\sqrt{16}\sqrt{3} = x$

$\boxed{4\sqrt{3} = x}$

12) Given the circle below with two secants, determine the value of x.



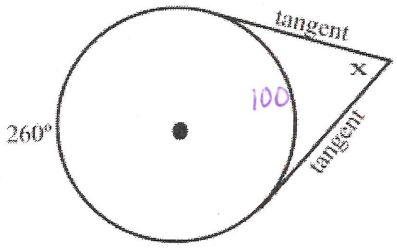
$\frac{185 - x}{2} = 80 \cdot 2$

$185 - x = 160$

$-x = -25$

$\boxed{x = 25}$

13) Given the circle below with two tangents, determine the value of x.



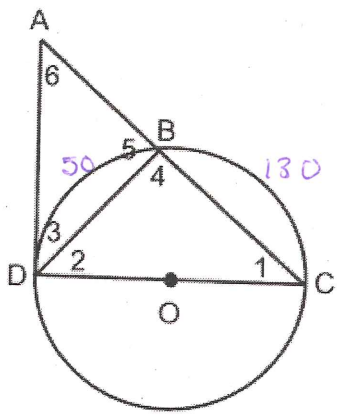
$360 - 260 = 100$

$\frac{260 - 100}{2} = x$

$\frac{160}{2} = x$

$\boxed{80 = x}$

14) In the diagram below, the measure of arc BD is 50 degrees. Determine the measure of angles 1, 2, 3, 4, 5, and 6.



$\angle 3 = \frac{1}{2}(50) = 25$

$\angle 4 = 90$

$\angle 2 = \frac{1}{2}(130) = 65$

$\angle 2 = 65$

$\angle 1 = \frac{1}{2}(50) = 25$

$\angle 1 = 25$

$\overset{\frown}{BC} = 180 - 50 = 130$

$\angle 6 = \frac{180 - 50}{2}$

$= \frac{130}{2}$

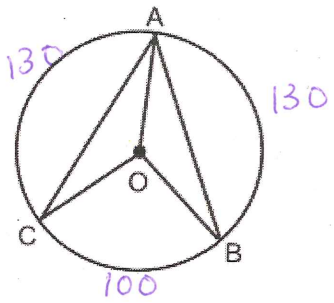
$\angle 6 = 65$

$\angle 5 = 180 - \angle 4$

$= 180 - 90$

$\angle 5 = 90$

15) In the diagram below, $\overline{AC} \cong \overline{AB}$. If the measure of arc BC is 100 degrees, what is the measure of $\angle AOB$?

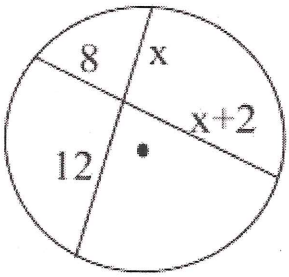


$360 - 100 = 260$

$\frac{260}{2} = 130$

$\angle AOB = 130$

16) Given the circle below with two intersecting chords, determine the value of x.



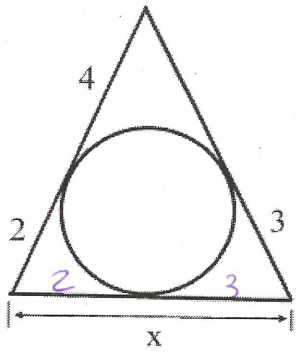
$8(x+2) = 12(x)$

$8x + 16 = 12x$

$16 = 4x$

$4 = x$

17) Three tangents are drawn to the circle below. Determine the value of x.



$X = 2 + 3$

$X = 5$

5