22 ✓

Geometry Group Quiz – Chapter 12 (points) ****SHOW YOUR WORK****

Name: Key / 18 **Date:** _____ **Block:** _____

1 ✓

PART 1: SHORT ANSWERS (points)

1) What is the standard equation of the circle with center (2, 3) passing through (0, -1). **(points)** 2 ✓

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$r = \sqrt{(0-2)^2 + (-1-3)^2} = \sqrt{20}$

$(x-h)^2 + (y-k)^2 = r^2$

$r^2 = \sqrt{20}^2 = 20$

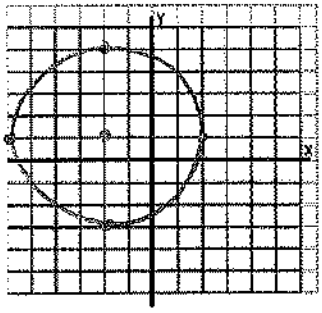
$\boxed{(x-2)^2 + (y-3)^2 = 20}$

2) Graph the circle. Label the center and radius. **(points)**

$(x+2)^2 + (y-1)^2 = 16$

$\boxed{C(-2, 1)}$

$r = \sqrt{16} = 4$



3) Use $\odot A$ at the right. **(points)** 3 ✓

a) What is $m\widehat{BC}$? $38°$

b) What is $m\widehat{BED}$? $82 + 180 = \boxed{262°}$

c) What is the length of $\widehat{CED}$? Leave your answer in terms of π.

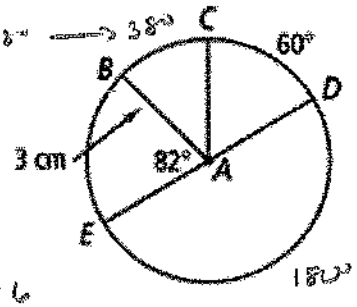
$82 + 60 = 142$

$180 - 142 = 38°$

$360 - 60 = 300°$

$r = 3 \quad d = 6$

$l = \frac{m}{360} \cdot \pi d = \frac{300}{360} \cdot \pi(6) = \boxed{5\pi \text{ cm}}$



4) Use $\odot C$ at the right. $\overline{DE}$ is tangent to $\odot C$. **(points)** 3 ✓

a) If $DE = 8$ and $EF = 4$, what is the radius?

$a^2 + b^2 = c^2$

$r^2 + 8^2 = (r+4)^2$

$r^2 + 64 = r^2 + 8r + 16$

$-r^2 \quad -64 \quad -r^2 \quad -64$

$0 = 8r - 48$

$+48 \quad +48$

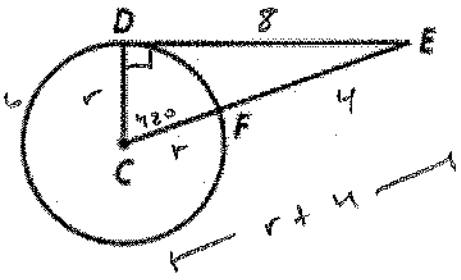
$\frac{48}{8} = \frac{8r}{8}$

$\boxed{r = 6}$

$(r+4)(r+4)$

$r^2 + 4r + 4r + 16$

$r^2 + 8r + 16$



b) If $m\angle C = 42°$, what is the $m\angle E$?

$90 + 42 = 132$

$180 - 132 = \boxed{48°}$

4 ✓

5) Use $\odot P$ at the right. $m\widehat{QR} = 100°$. **(points)**

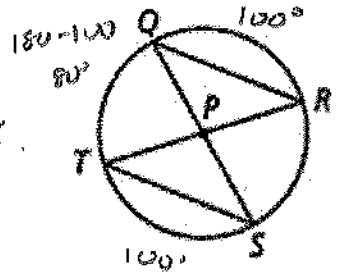
a) What is $m\widehat{ST}$? How do you know?

$m\widehat{ST} = 100°$ $\angle QPR \cong \angle TPS$ by Vertical $\angle$'s. They are central $\angle$'s, so their intercepted arcs are $\cong$.

b) What is $m\angle QPT$? How do you know?

$\angle QPT = 80°$ $\widehat{TWZ}$ is a semicircle, so

$m\widehat{QT} = 180 - 100 = 80°$ Since $\angle QPT$ is a central $\angle$, it is $=$ to its intercepted arc.



13

3/ (2+2+4) 18

6) Lines that appear tangent are tangent. Find x, y, and z. **(points)**

$x \cdot 8 = 12 \cdot 4$

$\frac{8x}{8} = \frac{48}{8}$

$x = 6$

2 chords

$y = \frac{1}{2}(80 + 100)$

$y = \frac{1}{2}(180)$

$y = 90°$

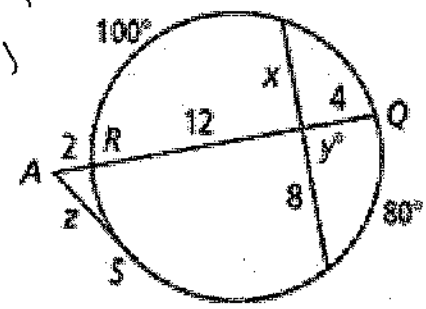
$\angle$ In

$z^2 = (18)(2)$

$z^2 = 36$

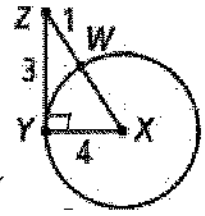
$z = 6$

tangent / secant



7) A classmate insists that $\overline{YZ}$ is not tangent to $\odot X$. Explain your classmate's error. **(points)**

(1+3) is not the hypotenuse. The radius is 4, so the hypotenuse should be (1+4).

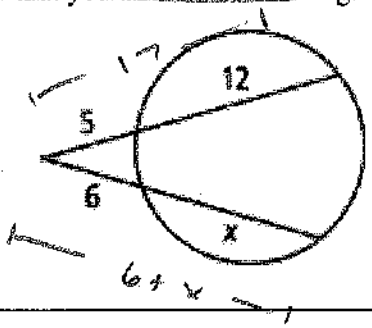


YZ cannot be tangent because $3^2 + 4^2 \neq (1+3)^2$

Explain your classmate's error

8) A classmate insists that the value of x is 10. ~~Write and solve an equation to show that your classmate is wrong.~~ **(points)**

My classmate did not use the entire length of each secant. He created the equation $6 \cdot x = 5 \cdot 12$. However, he should have used $6(6+x) = 5(17)$.



2+2=4

PART 2: EXTENDED RESPONSE (points)

$\square ABCD$ is inscribed in $\odot O$. (Draw a picture)

a) Explain why $\angle A$ and $\angle B$ are right angles.

$\angle A \cong \angle C$ and $\angle B \cong \angle D$ (Opp $\angle$s of $\square$ are $\cong$)

$\angle A$ is supp. to $\angle C$ and $\angle B$ is supp to $\angle D$ (Opp $\angle$s of Inscribed Quad are $\cong$)

$\angle A$, $\angle B$, $\angle C$, $\angle D$ are right $\angle$s (2 $\angle$s $\cong$ and supp are rt. $\angle$s)

b) Explain why $\overline{AC} \cong \overline{BD}$.

ABCD is a rectangle ($\square$ with 4 rt. $\angle$s)

Therefore, $\overline{AC} \cong \overline{BD}$ (Diags of a rectangle are $\cong$).

5+4