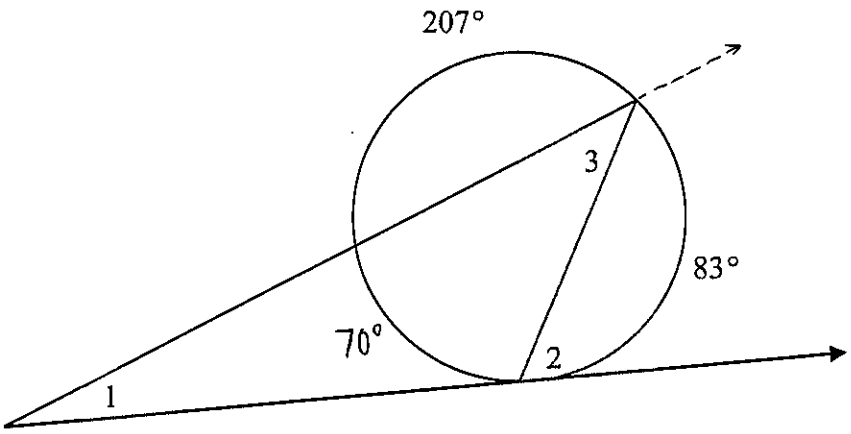
A.M.D.G.

Geometry Accelerated
Chapter 12 Practice Test

Name: KEY

1. Find the measure of angles 1, 2, and 3 in the diagram below.



$m\angle 1 =$ 6.5°

$m\angle 2 =$ 41.5°

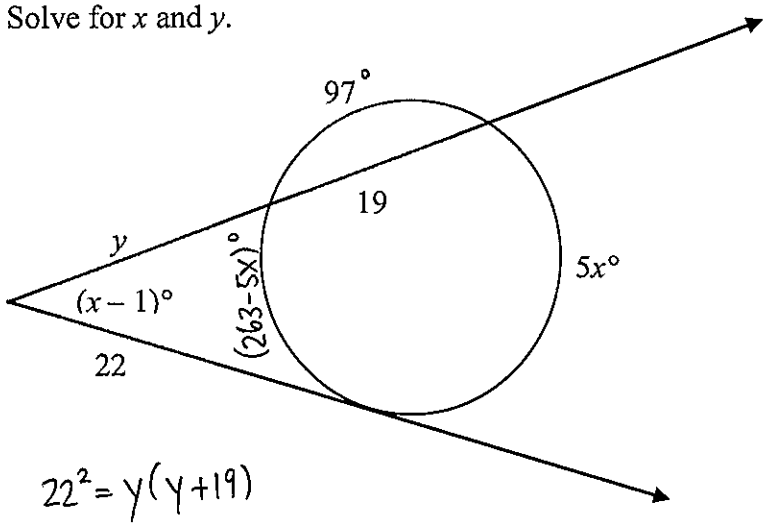
$m\angle 3 =$ 35°

$m\angle 1 = \frac{1}{2}(83-70) = 6.5$

$m\angle 2 = \frac{1}{2}(83) = 41.5$

$m\angle 3 = \frac{1}{2}(70) = 35$

2. Solve for x and y.



$x-1 = \frac{1}{2}[5x-(263-5x)]$

$= \frac{1}{2}(10x-263)$

$x-1 = 5x-131.5$

$-4x = -130.5$

$\boxed{x = 32.625}$

$22^2 = y(y+19)$

$y^2+19y-484 = 0$

$y = \frac{-19 \pm \sqrt{19^2-4(-484)}}{2}$

$\boxed{y =} \frac{-19 \pm \sqrt{2297}}{2} \approx \boxed{14.464,} -33.464$

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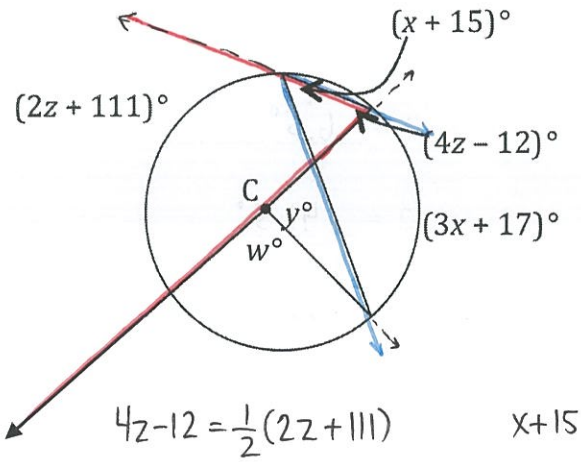
3. Solve for all variables in the picture below. C is the center of the circle.



$w =$ 124°

$x =$ 13

$y =$ 56°

$z =$ 22.5

$4z-12 = \frac{1}{2}(2z+111)$

$4z-12 = z+55.5$

$3z = 67.5$

$z = 22.5$

$x+15 = \frac{1}{2}(3x+17)$

$2x+30 = 3x+17$

$13 = x$

$y = 3x+17$

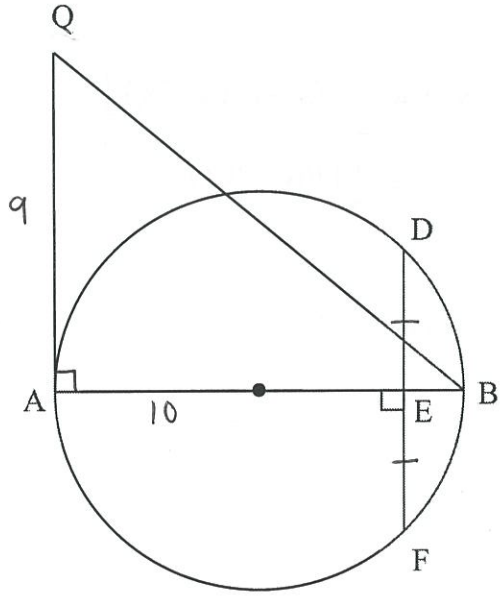
$y = 3(13)+17 = 56$

$w+y = 180$

$w+56 = 180$

$w = 124$

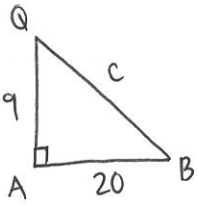
4. In the figure below, $\overline{AB}$ is a diameter, the radius is 10 cm, $AE = 18$ cm, $DE = 6$ cm, and $QA = 9$ cm. Find the following:



$EF =$ 6 cm

$EB =$ 2 cm

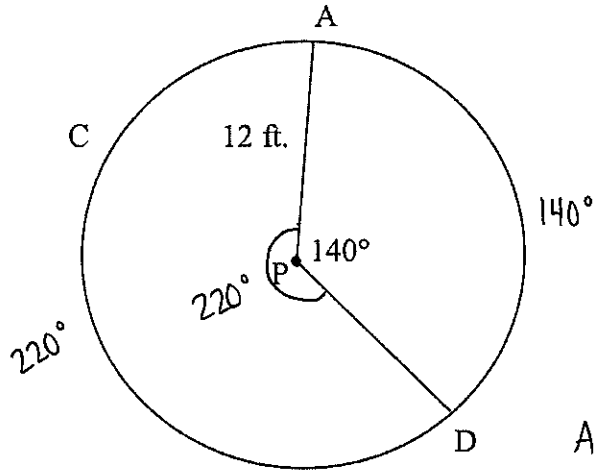
$QB =$ $\sqrt{481}$ cm $\approx$ 21.932



$c^2 = 9^2 + 20^2$

$c = \sqrt{481}$

5. In circle P, find the length of $\overset{\frown}{ACD}$, and the area of sector APD.



$$\text{arc length} = 2\pi r\left(\frac{m\,\text{central}\angle}{360}\right)$$

$$= 24\pi\left(\frac{220}{360}\right)$$

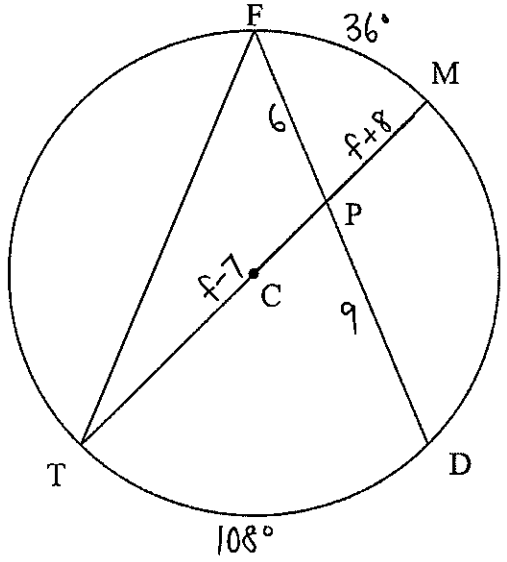
$$\boxed{\overset{\frown}{ACD} = \frac{44}{3}\pi \text{ ft.}}$$

$$A_{\text{sector}} = \pi r^2\left(\frac{m\,\text{central}\angle}{360}\right)$$

$$= 144\pi\left(\frac{140}{360}\right)$$

$$\boxed{A_{APD} = 56\pi \text{ ft.}^2}$$

6. Find $m\angle TFD$, $m\angle TPD$, and f. C is the center of the circle and $\overline{MT}$ is a diameter.



$m\overset{\frown}{FM} = 36°$

$m\overset{\frown}{TD} = 108°$

$PT = (f-7)\text{in}$

$PM = (f+8)\text{in}$

$PF = 6 \text{ in}$

$PD = 9 \text{ in}$

$$(f-7)(f+8) = 6\cdot 9$$

$$f^2+f-56 = 54$$

$$f^2+f-110 = 0$$

$$(f+11)(f-10) = 0$$

$$f = -11, 10 \quad \therefore \quad \boxed{f = 10}$$

$$m\angle TPD = \frac{1}{2}(108+36)$$

$$\boxed{m\angle TPD = 72°}$$

$$m\angle TFD = \frac{1}{2}(108)$$

$$\boxed{m\angle TFD = 54°}$$

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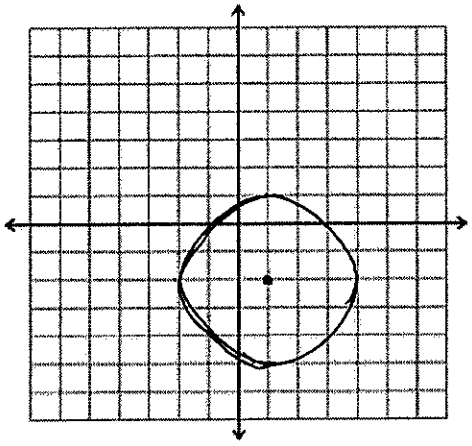
7. Graph the circle $(x-1)^2+(y+2)^2=9$. Then find the domain and range.



center: (1, -2)

radius: 3

Domain: $-2 \le x \le 4$

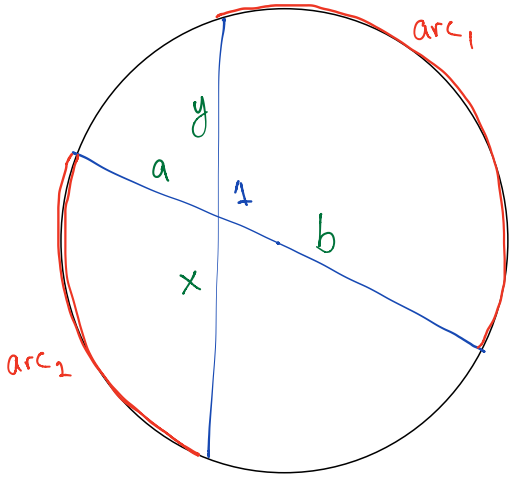
Range: $-5 \le y \le 1$

A few keys to remembering

I If the angle is inside the circle

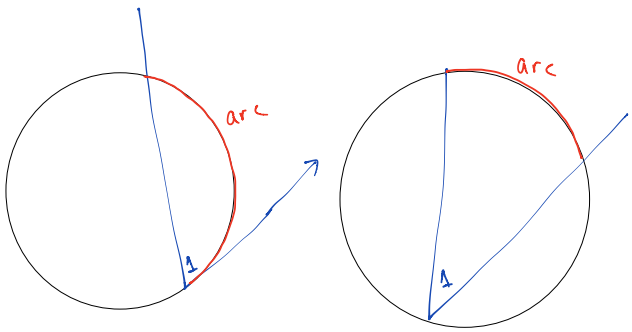
$m\angle 1 = \frac{1}{2}(arc_1 + arc_2)$

$xy = ab$



II If the angle is on the circle

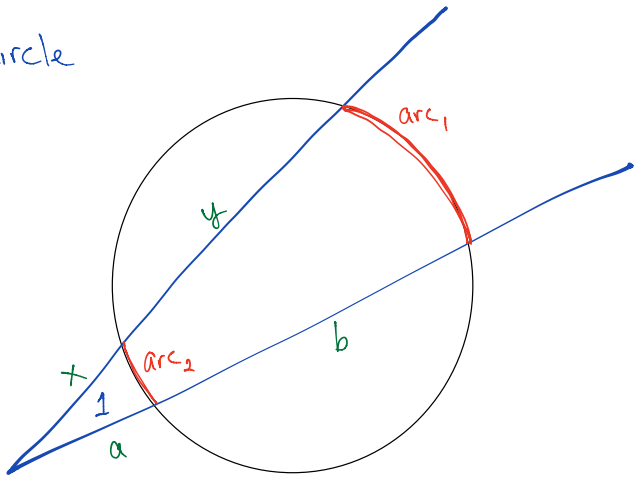
$m\angle 1 = \frac{1}{2}(\text{arc})$



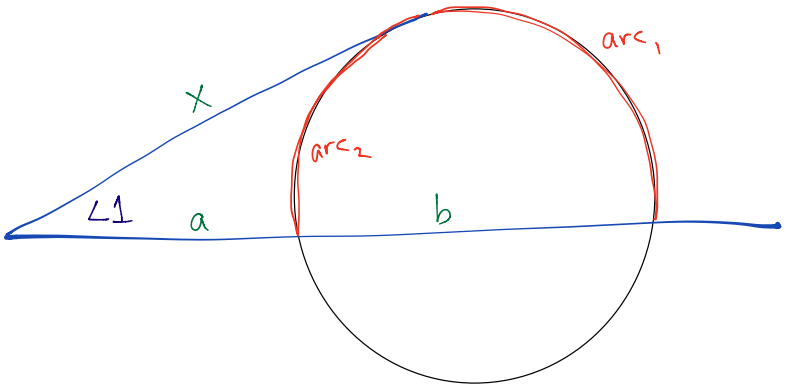
III If the angle is outside the circle

$m\angle 1 = \frac{1}{2}(\text{arc}_1 - \text{arc}_2)$

$x(x+y) = a(a+b)$



$m\angle 1 = \frac{1}{2}(\text{arc}_1 - \text{arc}_2)$



$x^2 = a(a+b)$