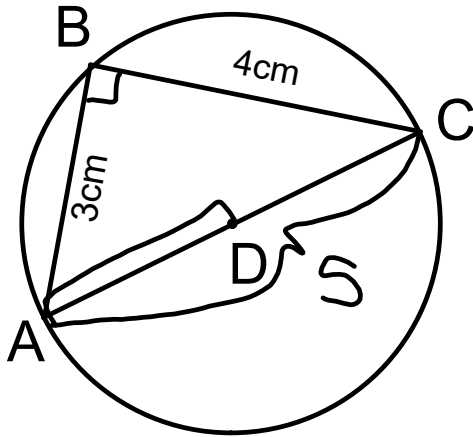


Bellwork: Find the length of \overline{AD}



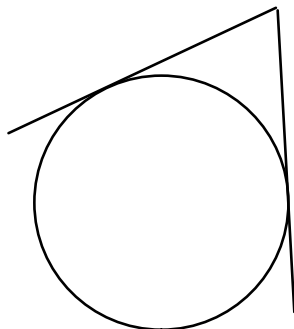
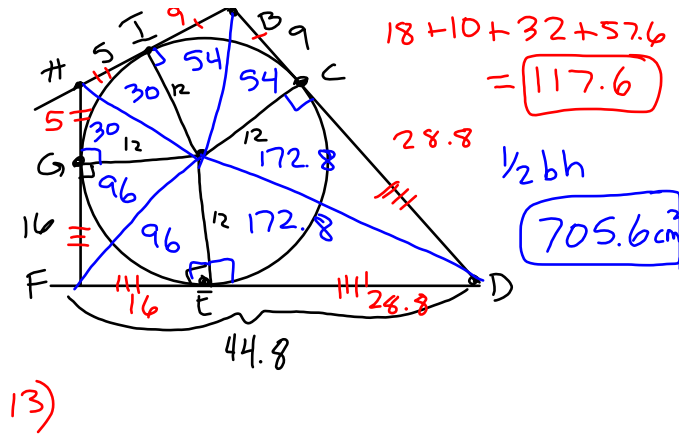
$$a^2 + b^2 = c^2$$

$$3^2 + 4^2 = c^2$$

$$\sqrt{25} = \sqrt{c^2}$$

$$c = 5$$

$AD = 2.5 \text{ cm}$



Homework 6.1 Solutions

1. $x = 35^\circ$

$y = 55^\circ$

2. $x = 53^\circ$

$y = 106^\circ$

3. $x = 86^\circ$

$y = 94^\circ$

4. $x = 90^\circ$

$y = 21^\circ$

5. $x = 33^\circ$

$y = 138^\circ$

6. $x = 80^\circ$

$y = 90^\circ$

7. $x = 50^\circ$

$y = 100^\circ$

8. $x = 70^\circ$

$y = 55^\circ$

9. $x = 44^\circ$

$y = 88^\circ$

10. $AB = 5$ cm

11. $EB = 3.2$ cm

12. Perimeter $BDFH = 117.6$ cm

13. Area $BDFH = 705.6$ cm²

Lesson 6.2 Objective

I can find measures of lengths and areas in circles

Solving for lengths

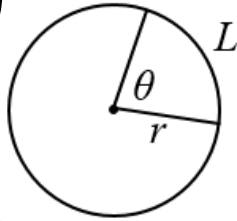
CIRCUMFERENCE OF A CIRCLE

$$C = 2\pi r = \pi d$$

$$2\pi r \left(\frac{\theta}{360} \right)$$

ARCLength

$$L = \frac{\pi r \theta}{180^\circ}$$



$$L = 2\pi r \frac{\theta}{360^\circ}$$

Solving for areas

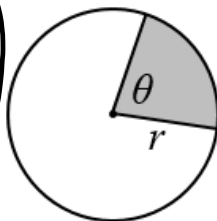
AREA OF A CIRCLE

$$A = \pi r^2$$

$$\pi r^2 \left(\frac{\theta}{360} \right)$$

AREA OF A SECTOR

$$A = \frac{\pi r^2 \theta}{360^\circ}$$



1. Find the area and circumference of a circle with $r = 9\text{cm}$.

$$C = 2\pi r = 2\pi(9) = 56.54\text{ cm}$$

$$A = \pi r^2 = \pi(9)^2 = 254.47\text{ cm}^2$$

2. Find the area and circumference of a circle with $d = 12\text{m}$. $r = 6$

$$r = \frac{d}{2}$$

$$A = \pi(6)^2 = 113.10$$

$$C = 2\pi(6) = 37.70$$

3. Find the radius of a circle with $C = 50\text{cm}$.

$$C = 2\pi r$$

$$\frac{50}{(2\pi)} = \frac{2\cancel{\pi}r}{\cancel{2}\pi}$$

$$r = 7.95 \text{ cm}$$

4. Find the radius of a circle with $A = 95\text{cm}^2$.

$$A = \pi r^2$$

$$\frac{95}{\pi} = \frac{\cancel{\pi}r^2}{\cancel{\pi}}$$

$$\sqrt{30.24} = \sqrt{r^2}$$

$$r = 5.50 \text{ cm}$$

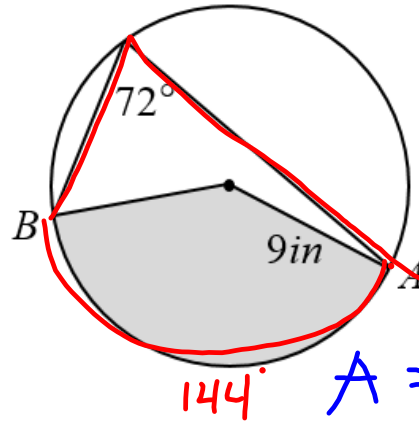
5. Find the arclength of \widehat{AB} and the area of the shaded sector.

$$L = \frac{\pi r \theta}{180}$$

$$L = \frac{\pi(9)(144)}{180}$$

$$L = 22.62 \text{ in}$$

$$A = 101.79$$



$$\theta = \text{theta}$$

$$r = 9 \text{ in}$$

$$\theta = 144^\circ$$

$$A = \frac{\pi r^2 \theta}{360}$$

$$A = \frac{\pi(9)^2(144)}{360}$$

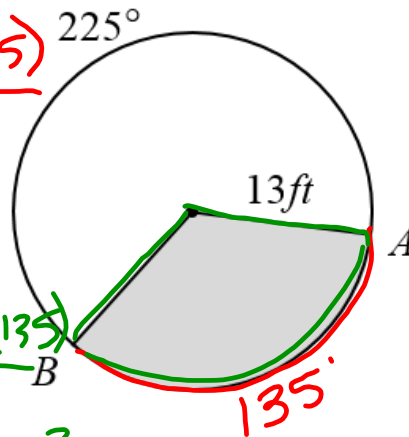
6. Find the arclength of \widehat{AB} and the area of the shaded sector.

$$L = \frac{\pi r \theta}{180} = \frac{\pi(13)(135)}{180}$$

$$= 30.63 \text{ ft}$$

$$A = \frac{\pi r^2 \theta}{360} = \frac{\pi(13)^2(135)}{360}$$

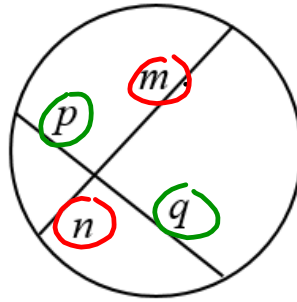
$$= 199.10 \text{ ft}^2$$



POWER OF THE POINT THEOREM

If two chords intersect in a circle, the products of the lengths of the partitions of each chord are equal.

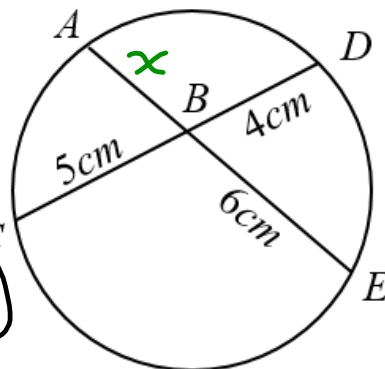
$$\underline{nm} = \underline{pq}$$



7. Find the length of \overline{AB} .

$$\cancel{6}x = \frac{5 \cdot 4}{6}$$

$$x = \frac{20}{6} = 3.\overline{3}$$



8. $AB = ?$
 $BE = ?$

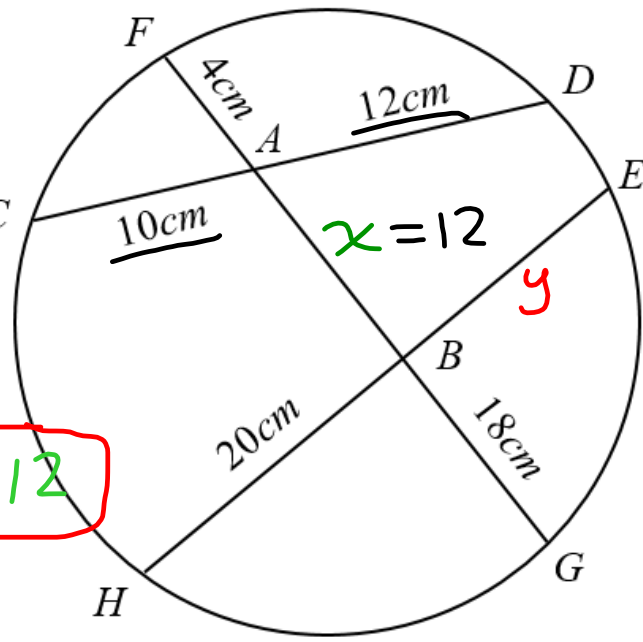
$$10 \cdot 12 = 4(18 + x)$$

$$120 = 72 + 4x$$

$$\begin{array}{r} -72 \\ -72 \end{array}$$

$$\frac{48}{4} = \frac{4x}{4}$$

$x = 12$



$$\frac{20y}{20} = \frac{18 \cdot (4 + 12)}{20}$$

$y = 14.4$