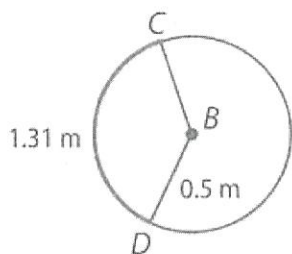


## OPTIONAL Practice "Quest"

1. Find  $m\widehat{CD}$ . Round to two decimal places, if necessary.



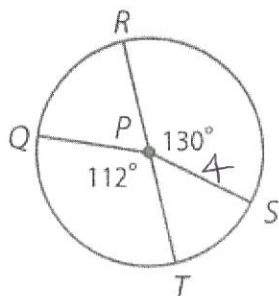
$$\frac{1.31}{2\pi(0.5)} = \frac{x}{360}$$

$$\pi x = 471.4$$

$$x = 150.11$$

$$m\widehat{CD} \approx 150.11^\circ$$

2. Find the length of  $\widehat{QR}$  if  $PS = 4$  cm.



$$m\angle RPQ = 68^\circ$$

$$\frac{68}{360} = \frac{x}{2\pi(4)}$$

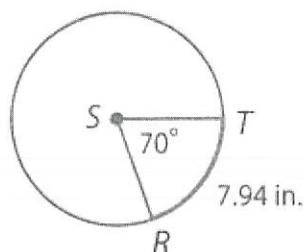
$$\frac{17}{90} = \frac{x}{8\pi}$$

$$90x = 136\pi$$

$$x = \frac{136\pi}{45} \text{ cm}$$

$$\approx 4.75 \text{ cm}$$

3. Find the circumference of  $\odot S$ .



$$\frac{7.94}{c} = \frac{70}{360}$$

$$7c = 285.84$$

$$c \approx 40.83 \text{ in}$$

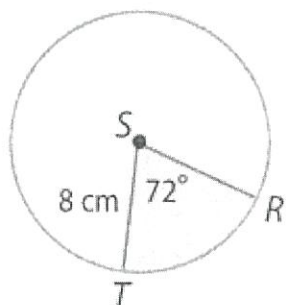
4. Convert  $315^\circ$  to radians.

$$315^\circ \times \frac{\pi}{180^\circ} = \boxed{\frac{7\pi}{4}}$$

5. Convert  $\frac{8\pi}{3}$  radians to degrees.

$$\frac{8\pi}{3} \times \frac{180^\circ}{\pi} = \boxed{480^\circ}$$

6. Find the area of the shaded sector. Give exact and approximate answers.



$$\frac{72}{360} = \frac{x}{\pi(8)^2}$$

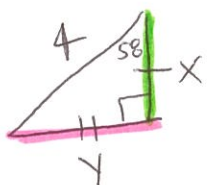
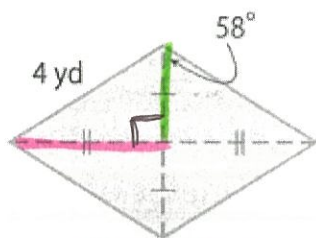
$$\frac{1}{5} = \frac{x}{64\pi}$$

$$5x = 64\pi$$

$$x = \frac{64\pi}{5} \text{ cm}^2$$

$$\approx 40.21 \text{ cm}^2$$

7. Find the area of the rhombus. Round answer to two decimal places.

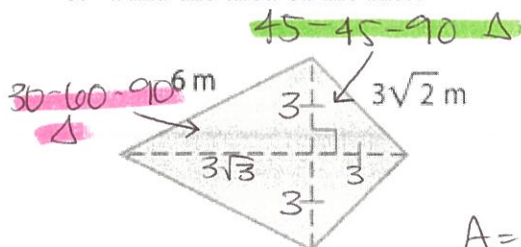


$$\cos(58) = \frac{x}{4}$$

$$x = 2.12 \rightarrow d_1 = 2(2.12) = 4.24$$

$$\sin(58) = \frac{y}{4}$$

8. Find the area of the kite.



$$d_1 = 6$$

$$d_2 = 3 + 3\sqrt{3} \approx 8.20$$

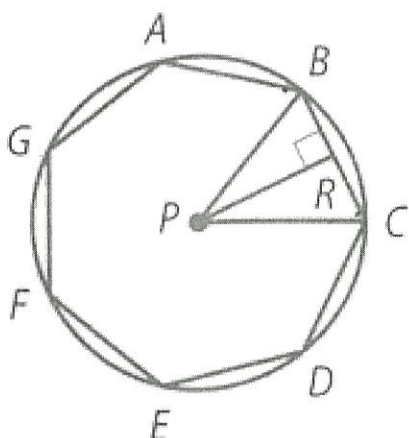
$$A = \frac{1}{2}(6)(8.2) \rightarrow A \approx 24.59 \text{ m}^2$$

$$y = 3.39 \rightarrow d_2 = 2(3.39) = 6.78$$

$$A = \frac{1}{2}(4.24)(6.78)$$

$$A \approx 14.37 \text{ yd}^2$$

9. Use the diagram to name or find the following:



a. Center of the polygon P

b. Radius of the polygon BP OR CP

c. Apothem of the polygon PR

d. Central angle of the polygon \angle BPC

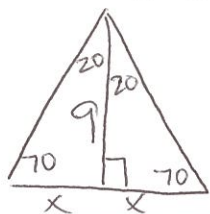
$$e. m\angle BPC = 51.429^\circ$$

$$f. m\angle BPR = 25.714^\circ$$

$$g. m\angle RBP = 64.286^\circ$$

10. Find the area of a regular nonagon if...

a. The apothem = 9 cm



$$\tan(20) = \frac{x}{9}$$

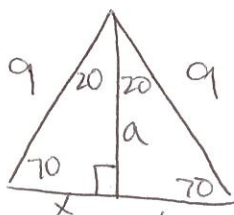
$$x \approx 3.28 \rightarrow s = 2(x) = 6.55$$

$$A = \frac{1}{2}ap$$

$$= \frac{1}{2}(9)(6.55)(9)$$

$$\approx 265.33 \text{ cm}^2$$

b. The radius = 9 cm



$$\cos(20) = \frac{a}{9}$$

$$a \approx 8.46$$

$$\cos(70) = \frac{x}{9}$$

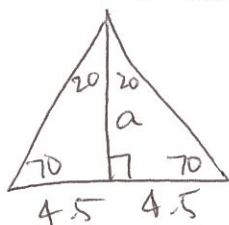
$$x \approx 3.08$$

$$s = 2(x) \approx 6.16$$

$$A = \frac{1}{2}(8.46)(6.16)(9)$$

$$\approx 234.37 \text{ cm}^2$$

c. The side length = 9 cm



$$\tan(70) = \frac{a}{4.5}$$

$$a \approx 12.36$$

$$A = \frac{1}{2}(12.36)(9)(9)$$

$$\approx 500.73 \text{ cm}^2$$