

One Sheet: Unit 6

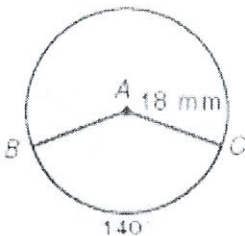
Name: Key

1. Find the area of sector BAC, and the length of  $\widehat{BC}$ . Give your answer in terms of  $\pi$  and as a decimal rounded to the nearest hundredth.

$$\frac{140}{360} \cdot 2\pi(18)$$

$$14\pi = \text{Length}$$

$$43.98$$



$$\frac{140}{360} \cdot \pi(18)^2$$

$$126\pi = \text{Area}$$

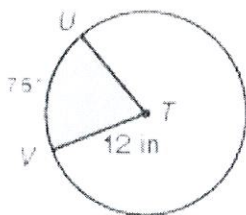
$$395.84$$

2. Find the area of sector VTU, and the length of  $\widehat{VU}$ . Give your answer in terms of  $\pi$  and as a decimal rounded to the nearest hundredth.

$$\frac{76}{360} \cdot 2\pi(12)$$

$$\frac{76\pi}{15} = \text{Length}$$

$$15.92$$



$$\frac{76}{360} \cdot \pi(12)^2$$

$$\frac{152\pi}{5} = \text{Area}$$

$$95.50$$

3. Given a circumference of  $50\pi$  feet find the area of a sector whose central angle measurement is  $40^\circ$ .

$$50\pi = 2\pi r$$

$$25 = r$$

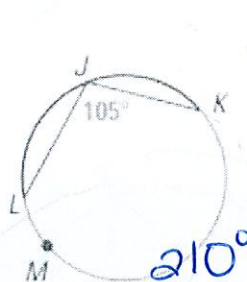
$$\frac{40}{360} \cdot \pi(25)^2 = \boxed{\frac{625\pi}{9} \text{ feet}^2}$$

4. Find the diameter of a circle that has  $100^\circ$  central angle with an intercepted arc that is  $3\pi$  units long.

$$3\pi = \frac{100}{360} \cdot 2\pi r$$

$$3 = \frac{5r}{9} \rightarrow r = \frac{27}{5} \rightarrow D = \frac{54}{5} = 10.8$$

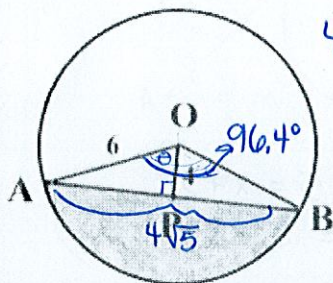
5. Find the length of  $\widehat{LMK}$  below if the circle has a diameter of 9. Leave your answer in terms of pi.



$$\frac{210}{360} \cdot 2\pi(4.5)$$

$$\boxed{\frac{21\pi}{4}}$$

6. Find the area of the shaded portion of circle O, if  $\overline{OP}$  is perpendicular to  $\overline{AB}$ .



$$4^2 + x^2 = 6^2$$

$$x^2 = 36 - 16$$

$$x^2 = 20$$

$$x = 2\sqrt{5}$$

$$\cos \theta = \frac{4}{6}$$

$$\theta \approx 48.2^\circ$$

$$\frac{96.4^\circ}{360^\circ} \cdot \pi(6)^2 - \frac{1}{2}(6)^2 \sin 96.4^\circ$$

$$30.3 - 17.9$$

$$\boxed{12.4}$$

