

Review 31.1 - 31.3

You must show your work credit.

$A = \pi r^2$

\*Remember to include appropriate units.\*

Find the area of each circle. Use your calculator's value of  $\pi$ . Round your answer to the nearest tenth.

1) radius = 7.5 yd  $A = \pi(7.5)^2$   
 $A \approx 176.7 \text{ yd}^2$

2) diameter = 18.6 yd  $A = \pi(9.3)^2$   
 $r = 9.3 \text{ yd}$   
 $A \approx 271.7 \text{ yd}^2$

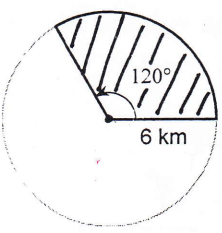
3) circumference = 57.2 yd  $C = 2\pi r$   
 $57.2 = 2\pi r$   
 $\frac{57.2}{2\pi} = \frac{2\pi r}{2\pi}$   
 $9.10366 \approx r$   
 $A = \pi(9.10366)^2$   
 $A \approx 260.4 \text{ yd}^2$

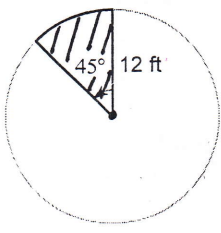
Find the radius of each circle. Use your calculator's value of  $\pi$ . Round your answer to the nearest tenth.

4) circumference = 72.9 in  $C = 2\pi r$   
 $72.9 = 2\pi r$   
 $\frac{72.9}{2\pi} = \frac{2\pi r}{2\pi}$   
 $r \approx 11.6 \text{ in}$

5) area = 102.1 in<sup>2</sup>  $A = \pi r^2$   
 $102.1 = \pi r^2$   
 $\sqrt{\frac{102.1}{\pi}} = \frac{\pi r^2}{\pi}$   
 remember parentheses  
 $r \approx 5.7 \text{ in}$

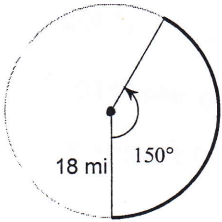
Find the area of each sector. Round your answers to the nearest tenth.

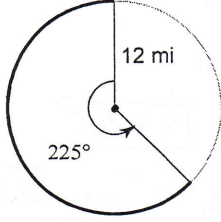
6)   $\frac{120^\circ}{360^\circ} = \frac{x}{\pi(6^2)}$   
 $\frac{360x}{360} = \frac{120\pi \cdot 36}{360}$   
 $x \approx 37.7 \text{ km}^2$

7)   $\frac{45^\circ}{360^\circ} = \frac{x}{\pi \cdot 12^2}$   
 $\frac{360x}{360} = \frac{45\pi \cdot 144}{360}$   
 $x \approx 56.5 \text{ ft}^2$

$\frac{\text{central } \angle}{360^\circ} = \frac{\text{sector area}}{\text{total area}}$

Find the length of each arc. Round your answers to the nearest tenth.

8)   $\frac{150^\circ}{360^\circ} = \frac{x}{2\pi \cdot 18}$   
 $\frac{360x}{360} = \frac{150 \cdot 2\pi \cdot 18}{360}$   
 $x \approx 47.1 \text{ mi}$

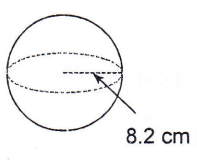
9)   $\frac{225^\circ}{360^\circ} = \frac{x}{2\pi \cdot 12}$   
 $\frac{360x}{360} = \frac{225 \cdot 2\pi \cdot 12}{360}$   
 $x \approx 47.1 \text{ mi}$

$\frac{\text{central } \angle}{360^\circ} = \frac{\text{arc length}}{\text{circumference}}$

Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary.

$SA = 4\pi r^2$

10)

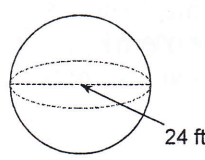


$$SA = 4\pi(8.2)^2$$

$$SA = 268.96\pi$$

$$SA \approx 844.96 \text{ cm}^2$$

11)



$$SA = 4\pi(12)^2$$

$$SA = 576\pi$$

$$SA \approx 1809.56 \text{ ft}^2$$

Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

$V = \frac{4}{3}\pi r^3$

12) A sphere with a radius of 10.8 mi.

$$V = \frac{4}{3}\pi(10.8)^3$$

$$V \approx 5276.67 \text{ mi}^3$$

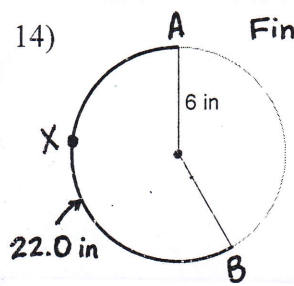
13) A sphere with a diameter of 6 cm.

$$V = \frac{4}{3}\pi(3)^3$$

$$V \approx 113.10 \text{ cm}^3$$

Find the missing info in each problem. Round your answers to the nearest tenth.

14)



Find the  $m\widehat{AXB}$ . ← same as central  $\angle$

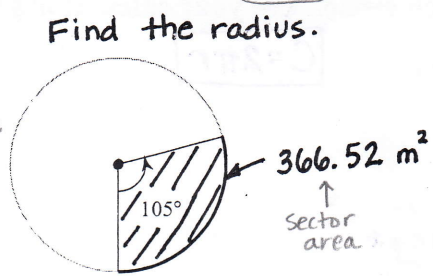
$$\frac{x}{360^\circ} = \frac{22.0}{2\pi(6)}$$

$$x \cdot 12\pi = 360 \cdot 22$$

$$(12\pi) \quad (12\pi)$$

$$x \approx 210.1^\circ$$

15)



Find the radius.

$$\frac{105^\circ}{360^\circ} = \frac{366.52}{\pi r^2}$$

$$\frac{105 \cdot \pi r^2}{105\pi} = \frac{360(366.52)}{105\pi}$$

$$r^2 = 400.0009354$$

$$r \approx 20.0 \text{ m}$$

(#16-18 round to the nearest hundredth.)

16) Find the radius of a sphere given the surface area is  $1194.59 \text{ cm}^2$ .

$$1194.59 = 4\pi r^2$$

$$\frac{1194.59}{4\pi} = r^2$$

$$\sqrt{95.06245173} = r$$

$$r \approx 9.75 \text{ cm}$$

17) Find the radius of a sphere given the volume is  $1436.76 \text{ ft}^3$ .

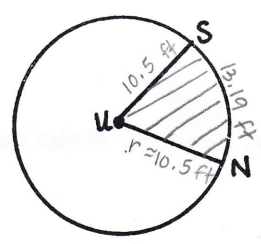
$$\frac{3}{4} \cdot 1436.76 = \frac{4}{3}\pi r^3$$

$$\frac{1077.57}{\pi} = r^3$$

$$\sqrt[3]{343.0011841} = r$$

$$r \approx 7.00 \text{ ft}$$

18) The area of circle U is  $346.36 \text{ ft}^2$ . The area of sector SUN is  $69.27 \text{ ft}^2$ . Find the indicated measure.



- a) Radius  $r \approx 10.50 \text{ ft}$
- b) Circumference  $C \approx 65.97 \text{ ft}$
- c) measure of arc  $\widehat{SN}$  (central  $\angle$ )  $x \approx 72^\circ$
- d) length of arc  $\widehat{SN}$  → length of  $\widehat{SN}$   $x \approx 13.19 \text{ ft}$
- e) perimeter of shaded region  $p \approx 34.19$   
 $10.50 + 10.50 + 13.19$

work →

a)  $\frac{346.36}{\pi} = \pi r^2$   
 $\sqrt{110.2498122} = r$   
 $r = 10.49999106$

b)  $C = 2\pi(10.49999106)$   
 $C \approx 65.97338953$

c)  $\frac{x}{360^\circ} = \frac{69.27}{346.36}$   
 $x \approx 71.99792124$

d)  $\frac{72^\circ}{360^\circ} = \frac{x}{65.97338953}$   
 $x \approx 13.19467791$