Review 31.1 - 31.3   You must show your work credit.

$A = \pi r^2$ *Remember to include appropriate units.*

ind the area of each circle. Use your calculator's value of π. 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

$r = 9.3 \text{ yd}$

$A = \pi (9.3)^2$

$A \approx 271.7 \text{ yd}^2$
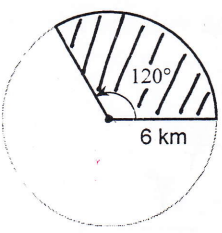
3) circumference = 57.2 yd $C = 2\pi r$

parentheses

$\dfrac{57.2}{(2\pi)} = \dfrac{2\pi r}{2\pi}$

$9.10366 \approx r$

$A = \pi (9.10366)$

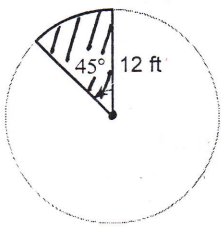$A \approx 260.4 \text{ yd}^2$

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

4) circumference = 72.9 in $C = 2\pi r$

$\dfrac{72.9}{(2\pi)} = \dfrac{2\pi r}{2\pi}$

$r \approx 11.6 \text{ in}$

5) area = 102.1 in² $A = \pi r^2$

$\sqrt{\dfrac{102.1}{\pi}} = \sqrt{\dfrac{\pi r^2}{\pi}}$ ← remember parentheses
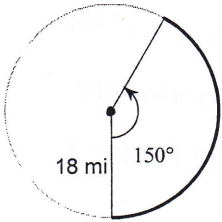
$r \approx 5.7 \text{ in}$

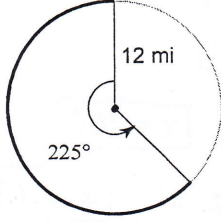**Find the area of each sector. Round your answers to the nearest tenth.**

$\dfrac{\text{central} \angle}{360°} = \dfrac{\text{sector area}}{\text{total area}}$

6)

$\dfrac{120°}{360°} = \dfrac{x}{\pi (6^2)}$

$\dfrac{360x}{360} = \dfrac{120\pi \cdot 36}{360}$

$x \approx 37.7 \text{ km}^2$

7)

$\dfrac{45°}{360°} = \dfrac{x}{\pi \cdot 12^2}$

$\dfrac{360x}{360} = \dfrac{45\pi \cdot 144}{360}$

$x \approx 56.5 \text{ ft}^2$

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

$\dfrac{\text{central} \angle}{360°} = \dfrac{\text{arc length}}{\text{circumference}}$

8)

$\dfrac{150°}{360°} = \dfrac{x}{2\pi \cdot 18}$

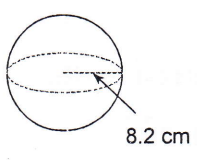$\dfrac{360x}{360} = \dfrac{150 \cdot 2\pi \cdot 18}{360}$

$x \approx 47.1 \text{ mi}$

9)

$\dfrac{225°}{360°} = \dfrac{x}{2\pi \cdot 12}$

$\dfrac{360x}{360} = \dfrac{225 \cdot 2\pi \cdot 12}{360}$

$x \approx 47.1 \text{ mi}$

Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary. $\boxed{SA = 4\pi r^2}$

10)

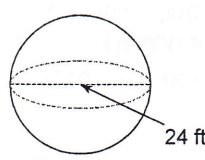$SA = 4\pi (8.2)^2$

$SA = 268.96\pi$

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

11)

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

$SA = 576\pi$

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

Find the volume of each figure. Round your answers to the nearest hundredth, if necessary. $\boxed{V = \frac{4}{3}\pi r^3}$

12) A sphere with a radius of 10.8 mi.

$V = \frac{4}{3}\pi (10.8)^3$
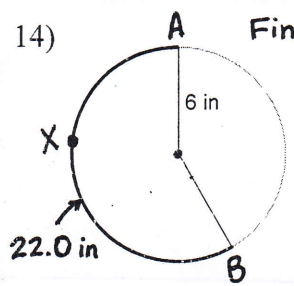
$\boxed{V \approx 5276.67 \text{ mi}^3}$

13) A sphere with a diameter of 6 cm.

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

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

Find the missing info in each problem. Round your answers to the nearest tenth.
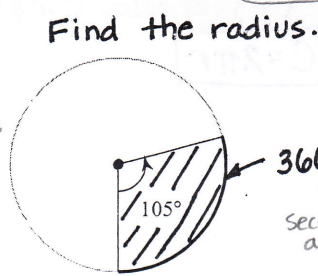
14) Find the m $\overarc{AXB}$. ← same as Central ∠

A

6 in

X

22.0 in

B

$\dfrac{X}{360°} = \dfrac{22.0}{2\pi(6)}$ ← arc length / circumference

$\dfrac{X \cdot 12\pi}{(12\pi)} = \dfrac{360 \cdot 22}{(12\pi)}$

$\boxed{X \approx 210.1°}$

15) Find the radius.

366.52 m²

105° Sector area

$\dfrac{105°}{360°} = \dfrac{366.52}{\pi r^2}$

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

$r^2 = 400.0009354$

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

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

16) Find the radius of a sphere given the surface area is 1194.59 cm^2.

$\dfrac{1194.59}{(4\pi)} = \dfrac{4\pi r^2}{4\pi}$

$\sqrt{95.06245173} = \sqrt{r^2}$

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

17) Find the radius of a sphere given the volume is 1436.76 ft^3.

$\dfrac{3}{4} \cdot 1436.76 = \dfrac{3}{4} \cdot \dfrac{4}{3}\pi r^3$
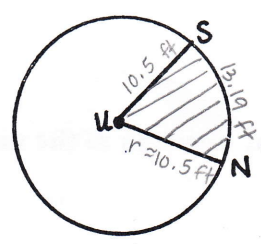
$\dfrac{1077.57}{\pi} = \dfrac{\pi r^3}{\pi}$

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

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

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

S

10.5 ft   13.19 ft

U $r \approx 10.5$ ft

N

work →

a) Radius $\boxed{r \approx 10.50 \text{ ft}}$

b) Circumference $\boxed{C \approx 65.97 \text{ ft}}$

c) measure of arc $\overarc{SN}$ → m $\overarc{SN}$ (central ∠) $\boxed{X \approx 72°}$

d) length of arc $\overarc{SN}$ → length of $\overarc{SN}$ $\boxed{X \approx 13.19 \text{ ft}}$

e) perimeter of shaded region $\boxed{p \approx 34.19}$

10.50 + 10.50 + 13.19

a) $\dfrac{346.36}{\pi} = \dfrac{\pi r^2}{\pi}$

$\sqrt{110.2498122} = \sqrt{r^2}$

$r = 10.49999106$

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

$C \approx 65.97338953$

c) $\dfrac{X}{360°} = \dfrac{69.27}{346.36}$

$X \approx 71.99792124$

d) $\dfrac{72°}{360°} = \dfrac{X}{65.97338953}$

$X \approx 13.19467791$