

Key

Review – Area, Circumference, Arc Length, and Sector Area

For Questions 1-2, find the Circumference and Area of each Circle.

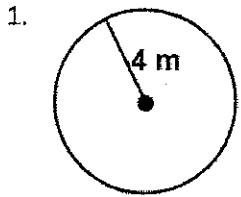
Formulas

Area of Sector = $\frac{\pi r^2 \theta}{360}$

Arc Length = $\frac{2\pi r \theta}{360}$

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

$A = \pi r^2$



Circumference:

$$C = 2\pi r$$

$$= 2\pi(4)$$

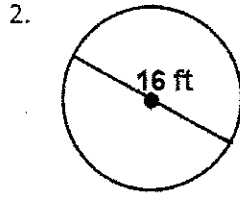
$$= 8\pi \text{ or } 25.133 \text{ m}$$

Area:

$$A = \pi r^2$$

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

$$= 16\pi \text{ or } 50.265 \text{ m}^2$$



Circumference:

$$C = 2\pi r$$

$$= 2\pi(16)$$

$$= 32\pi \text{ or } 100.531 \text{ ft}$$

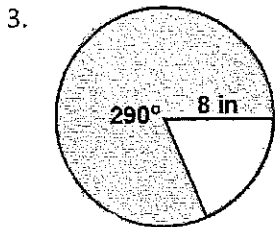
Area:

$$A = \pi r^2$$

$$= \pi(16)^2$$

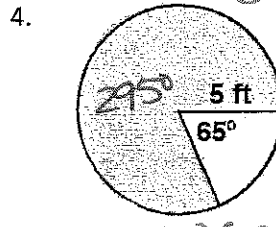
$$= 256\pi \text{ or } 804.248 \text{ ft}^2$$

Find the length of the arc for the Shaded region:



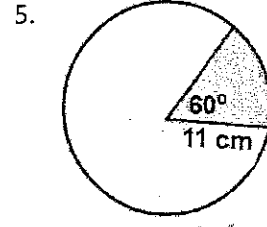
$$\frac{2\pi(8)(290)}{360}$$

$$= \frac{116\pi}{9} \text{ or } 40.492 \text{ in}$$



$$\frac{2\pi(5)(295)}{360}$$

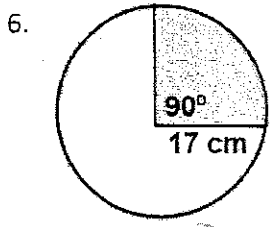
$$= \frac{295\pi}{36} \text{ or } 25.744 \text{ ft}$$



$$\frac{2\pi(11)(60)}{360}$$

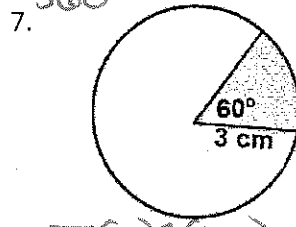
$$= \frac{11\pi}{3} \text{ or } 11.519 \text{ cm}$$

Find the Area of the Shaded Region:



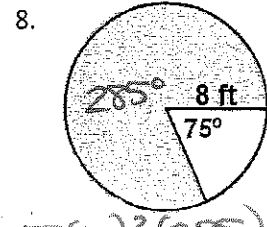
$$\frac{\pi(17)^2(90)}{360}$$

$$= \frac{289\pi}{4} = 226.98 \text{ cm}^2$$



$$\frac{\pi(3)^2(60)}{360}$$

$$= \frac{3\pi}{2} = 4.712 \text{ cm}^2$$



$$\frac{\pi(8)^2(285)}{360}$$

$$= \frac{152\pi}{3} = 159.174 \text{ ft}^2$$

Working Backwards:

Find the radius of a circle given the circumference is 32π cm.

$$C = 2\pi r$$

$$\frac{32\pi}{2\pi} = \frac{2\pi r}{2\pi}$$

$$16 \text{ cm} = r$$

10. Find the radius of a circle given Area is 120π in².

$$A = \pi r^2$$

$$\frac{120\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$120 = r^2$$

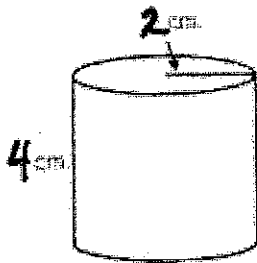
$$\sqrt{120} = \sqrt{r^2}$$

$$10.954 \text{ in} = r$$

Review - Find the volume of each of the following:

Name: _____

1.

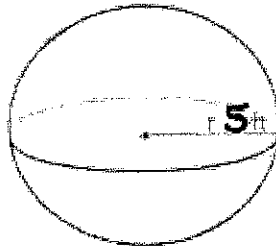


$$V = \pi r^2 h$$

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

$$= 50.265 \text{ cm}^3$$

2.

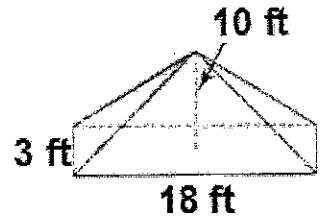


$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi (5)^3$$

$$= 523.599 \text{ ft}^3$$

3.

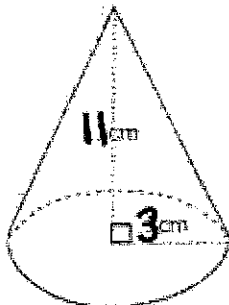


$$V = \frac{1}{3} lwh$$

$$= \frac{1}{3} (18)(3)(10)$$

$$= 180 \text{ ft}^3$$

4.

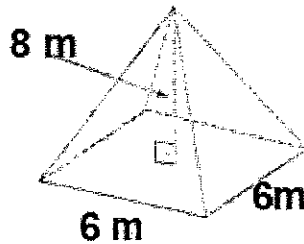


$$V = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \pi (3)^2 (11)$$

$$= 103.673 \text{ cm}^3$$

5.

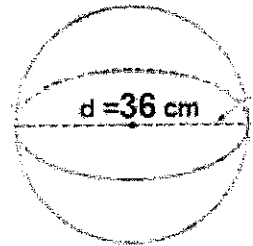


$$V = \frac{1}{3} lwh$$

$$= \frac{1}{3} (6)(6)(8)$$

$$= 96 \text{ m}^3$$

6.

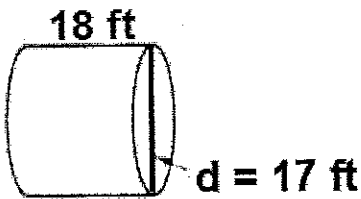


$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi (18)^3$$

$$= 24429.024 \text{ cm}^3$$

7.

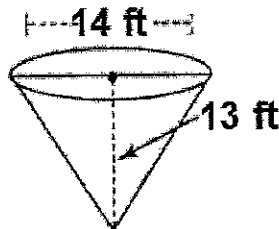


$$V = \pi r^2 h$$

$$= \pi (8.5)^2 (18)$$

$$= 4085.641 \text{ ft}^3$$

8.

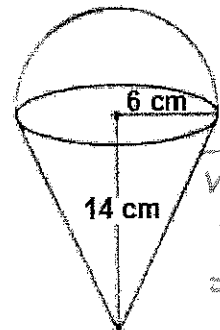


$$V = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \pi (7)^2 (13)$$

$$= 667.065 \text{ ft}^3$$

9.



Hemisphere

$$V = \frac{2}{3} \pi r^3$$

$$= \frac{2}{3} \pi (6)^3$$

$$= 904.779$$

$$\div 2$$

$$= 452.389$$

Cone

$$V = \frac{1}{3} \pi r^2 h$$

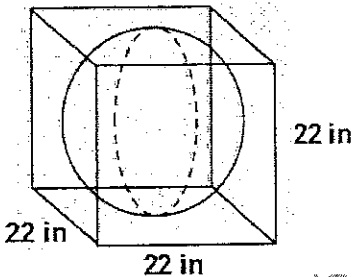
$$= \frac{1}{3} \pi (6)^2 (14)$$

$$= 527.788$$

$$452.389 + 527.788$$

$$= 980.167 \text{ cm}^3$$

10. Find the volume of the empty space:



BOX $V = lwh$

$$= (22)(22)(22)$$

$$= 10648$$

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

$$= \frac{4}{3} \pi (11)^3$$

$$= 5575.280$$

$$10648 - 5575.280 = 5072.72 \text{ in}^3$$