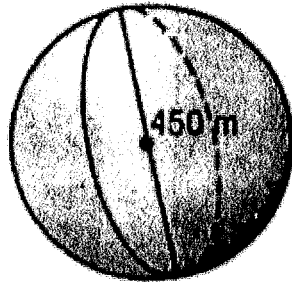


Name: _____
 Date: _____
 Class: _____

Geometry
 Unit 9
 HW 9-3

1) Find the surface area and volume of the following sphere in terms of π :



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

$$= \frac{4}{3} \pi (225)^3$$

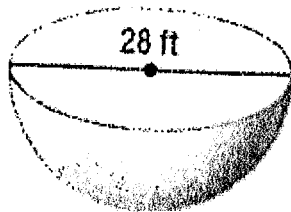
$$V = 15187500\pi \text{ m}^3$$

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

$$= 4\pi (225)^2$$

$$SA = 202500\pi \text{ m}^2$$

2) Find the volume and surface area to the nearest tenth of the following half sphere:



$$V = \frac{1}{2} \left(\frac{4}{3} \pi (14)^3 \right)$$

$$V = 5747.04\text{ ft}^3$$

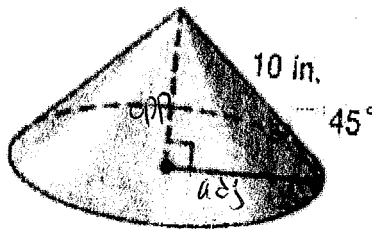
$$SA = \frac{1}{2} (4\pi r^2) + \pi r^2$$

$$= \frac{1}{2} (4\pi (14)^2) + \pi (14)^2$$

$$SA = 1847.3\text{ ft}^2$$

3) Find the volume and surface area to the nearest tenth of the following right circular cone:

$\sin 45 = \frac{x}{10}$
 $x = 7.071$
 opp \approx adj



$$V = \frac{1}{3} \pi (7.071)^2 (7.071)$$

$$V = 370.2\text{ in}^3$$

$$SA = \pi (7.071)^2 + \pi (7.071)(10)$$

$$SA = 189.3\text{ in}^2$$

4) If a golf ball has a diameter of 4.3 cm and a tennis ball has a diameter of 6.9cm find the difference between the volume of the two balls.

$$V = \frac{4}{3} \pi (2.15)^3$$

$$= 41.6297...$$

$$V = \frac{4}{3} \pi (3.45)^3$$

$$V = 172.0069...$$

Difference $\rightarrow 130.38\text{ cm}^3$

needs r

5) If a sphere has a volume of $\frac{2048\pi}{3} m^3$ what is its surface area in terms of π ?

$$\frac{2048\pi}{3} = \frac{4}{3}\pi r^3 \quad \sqrt[3]{\frac{3}{4}\pi} = \sqrt[3]{512} \quad r=8 \quad SA = 4\pi(8)^2$$

$$SA = 256\pi m^2$$

6) Find the volume of empty space in a cylindrical tube of three tennis balls. The diameter of each ball is 2.5 inches. The cylinder is 2.5 inches in diameter and 7.5 inches tall.

Ball $\rightarrow V = \frac{4}{3}\pi(1.25)^3$ Cylinder $\rightarrow V = \pi(1.25)^2(7.5)$ Empty $\rightarrow 12.27 in^3$

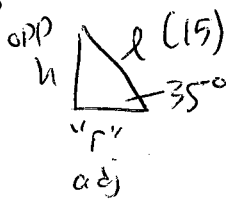
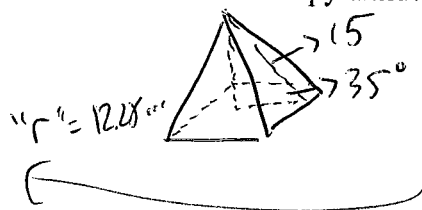
$$= (8.18...) 3 = 24.54... = 36.815...$$

7) If a pyramid has a slant height of 15cm that makes an angle of 35 degrees with the base, what is the volume of this pyramid?

$$\sin(35) = \frac{h}{15}$$

$$h = 8.6...$$

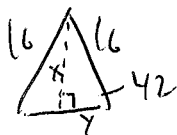
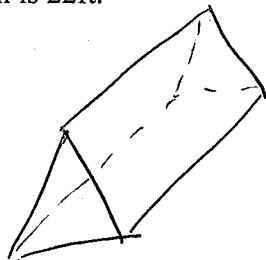
$$\cos(35) = \frac{r}{15}$$



$$V = \frac{1}{3}(2 \cdot 12.28) \cdot (8.6)$$

$$V = 1731.94 cm^3$$

8) If a triangular prism has isosceles triangles for a base which have legs equal to 16ft and base angles equal to 42 degrees, what is the surface area of the prism if the height of the prism is 22ft.



$$\sin 42 = \frac{x}{16}$$

$$x = 10.706...$$

$$\cos 42 = \frac{y}{16}$$

$$y = (11.89...) 2 = 23.78...$$

$$SA = 2A's + 2(\frac{1}{2} \cdot 23.78... \cdot 10.706...) + 2(16)(22) + (22)(23.78)$$

$$SA = 1481.77 ft^2$$