

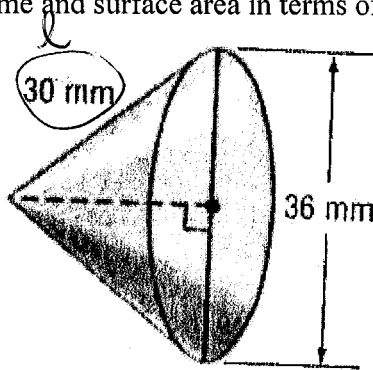
Name: _____
 Date: _____
 Class: _____

Geometry
 Unit 9
 HW 9-2

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

$$30^2 = r^2 + h^2$$

$$h = 24$$



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

$$= \frac{1}{3} \pi (30)^2 (36)$$

$$= 2592 \pi \text{ mm}^3$$

$$SA = \pi r^2 + \pi r l$$

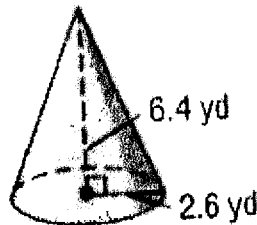
$$= \pi (30)^2 + \pi (30) (38)$$

$$= 864 \pi \text{ mm}^2$$

2) Find the volume and surface area rounded to the nearest hundredth for the following cone:

$$2.6^2 + 6.4^2 = l^2$$

$$l = \sqrt{47.72}$$



$$V = \frac{1}{3} \pi (2.6)^2 (6.4)$$

$$= 45.31 \text{ yd}^3$$

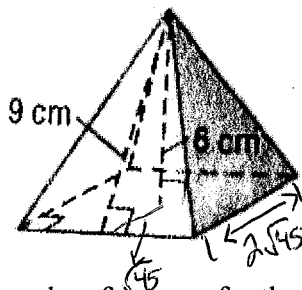
$$SA = \pi (2.6)^2 + \pi (2.6) (\sqrt{47.72})$$

$$= 77.66 \text{ yd}^2$$

3) Find the volume and surface area for the following pyramid:

$$9^2 = r^2 + 6^2$$

$$r = \sqrt{45}$$



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

$$= \frac{1}{3} (2\sqrt{45})(2\sqrt{45})(6)$$

$$V = 360 \text{ cm}^3$$

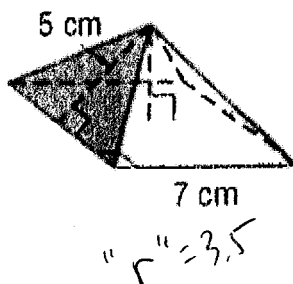
$$SA = 4 \left(\frac{1}{2} \cdot 6 \cdot 9 \right) + (6\sqrt{45})(6\sqrt{45})$$

$$SA = 421.5 \text{ cm}^2$$

4) Find the volume and surface area for the following pyramid:

$$5^2 = 3.5^2 + h^2$$

$$h = \sqrt{12.75}$$



$$V = \frac{1}{3} (7 \times 7) (\sqrt{12.75})$$

$$V = 58.3 \text{ cm}^3$$

$$SA = 4 \left(\frac{1}{2} \cdot 7 \cdot 5 \right) + 7 \cdot 7$$

$$SA = 109 \text{ cm}^2$$

5) If the volume of a cone is $\frac{1000\pi}{3} \text{ ft}^3$ and its diameter is 20ft how tall is the cone?

$$\frac{\frac{1000\pi}{3}}{\frac{1}{3}\pi(10)^2} = \frac{\frac{1}{3}\pi(10)^2 h}{\frac{1}{3}\pi(10)^2}$$

$$h = 10$$

6) If the slant height of a cone is 15cm and the base has a diameter of 18cm, what is the surface area of the cone?

$$15^2 = 9^2 + h^2$$

$$h = 12$$

$$SA = \pi r^2 + \pi r l$$

$$= \pi(9^2) + \pi(9)(15)$$

$$r = 9$$

$$216\pi \text{ cm}^2 = SA$$

$$678.6 \text{ cm}^2 = SA$$

7) The lateral faces of a regular pyramid are composed of

(1) squares

(3) congruent right triangles

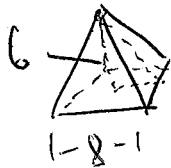
(2) rectangles

(4) congruent isosceles triangles

8) A three-dimensional shape is created from a cube with an edge of 8in. A pyramid is attached to each of the cubes faces so that its base is exactly as big as the cubes face. The height of each pyramid is 6in. Find the surface area of this combined shape.

* Only the Δ 's of the pyramid would be on outside

* 6 pyramids, 4 Δ 's each, 24 total Δ 's



1-8-1

$$r = 4$$

$$4^2 + 6^2 = l^2$$

$$l = \sqrt{52}$$

$$24 \left(\frac{1}{2} \right) (8) (\sqrt{52}) = SA$$

$$72\sqrt{13} = SA$$

$$692.27 = SA$$