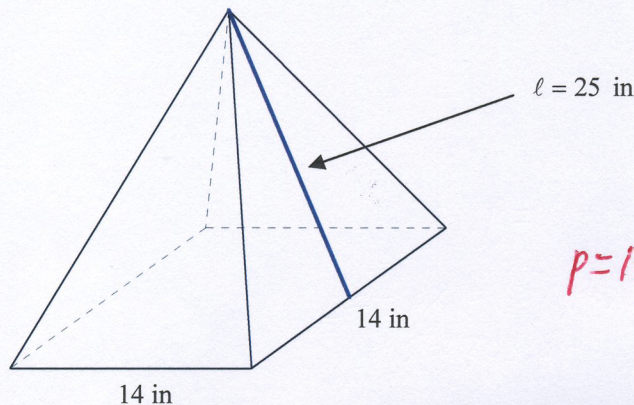


Answer the following. Be sure to include units. (Figures may not be drawn to scale.)

1. Given the following right pyramid with a square base,



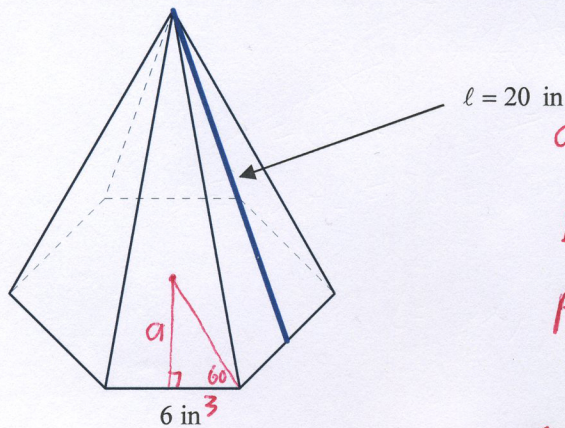
$$P = 14 + 14 + 14 + 14 = 56 \text{ in}$$

- a) Find the lateral area. $L = \frac{1}{2} p l = (\frac{1}{2})(56)(25) = 700 \text{ in}^2$
 b) Find the total surface area $S = 700 + (14 \cdot 14) = 896 \text{ in}^2$
 c) Find the volume.

$$V = \frac{1}{3} B h = (\frac{1}{3})(14 \cdot 14)(24) = 1568 \text{ in}^3$$

$$h = \sqrt{25^2 - 7^2} = 24 \text{ in}$$

2. Given the following regular right pyramid,



$$a = 3\sqrt{3} \text{ in}$$

$$B = \frac{1}{2} a p = (\frac{1}{2})(3\sqrt{3})(36) = 54\sqrt{3} \text{ in}^2$$

$$P = 6 + 6 + 6 + 6 + 6 + 6 = 36 \text{ in}$$

- a) Find the lateral area. $L = \frac{1}{2} p l = (\frac{1}{2})(36)(20) = 360 \text{ in}^2$
 b) Find the total surface area $S = 360 + \frac{1}{2} a p = 360 + (\frac{1}{2})(3\sqrt{3})(36) = 360 + 54\sqrt{3} \approx 453.5 \text{ in}^2$
 c) Find the volume.

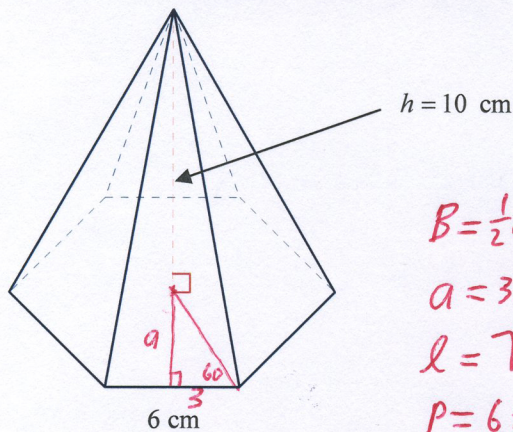
$$V = \frac{1}{3} B h = (\frac{1}{3})(54\sqrt{3})(\sqrt{373}) \approx 602.1 \text{ in}^3$$

$$h = \sqrt{20^2 - (3\sqrt{3})^2}$$

$$= \sqrt{400 - 27}$$

$$= \sqrt{373} \text{ in}$$

3. Given the following regular right pyramid,



$$B = \frac{1}{2}ap = \left(\frac{1}{2}\right)(3\sqrt{3})(36) = 54\sqrt{3} \text{ cm}^2$$

$$a = 3\sqrt{3} \text{ in}$$

$$l = \sqrt{10^2 + (3\sqrt{3})^2} = \sqrt{127} \text{ cm}$$

$$P = 6 + 6 + 6 + 6 + 6 + 6 = 36 \text{ cm}$$

- a) Find the lateral area. $L = \frac{1}{2}pl = \left(\frac{1}{2}\right)(36)(\sqrt{127}) \approx 202.8 \text{ cm}^2$
 b) Find the total surface area. $S = 202.8 + 54\sqrt{3} \approx 296.4 \text{ cm}^2$
 c) Find the volume.

$$V = \frac{1}{3}Bh = \left(\frac{1}{3}\right)(54\sqrt{3})(10) \approx 311.8 \text{ cm}^3$$

4. A right pyramid with a square base has a height of 10 cm and a volume of 120 cm^3 .

- a) Find the dimensions of the base. $V = \frac{1}{3}Bh$, $B = \frac{3V}{h} = \frac{3(120)}{10} = 36 \text{ cm}^2$, $\underline{6 \times 6}$
 b) Find the slant height.
 c) Find the total surface area.

$$P = 6 + 6 + 6 + 6 = 24 \text{ cm}$$

$$l = \sqrt{10^2 + 3^2} = \sqrt{109} \text{ cm}$$

$$L = \frac{1}{2}pl = \left(\frac{1}{2}\right)(24)(\sqrt{109}) \approx 125.3 \text{ cm}^2$$

$$S = B + L = 36 + 125.3 = 161.3 \text{ cm}^2$$

5. A right pyramid with a square base has a slant height of 8 in and a lateral area of 80 in^2 .

- a) Find the dimensions of the base. $L = \frac{1}{2}pl$, $P = \frac{2L}{l} = \frac{2(80)}{8} = 20 \text{ in}$, $\underline{20/4=5, 5 \times 5}$
 b) Find the height.
 c) Find the volume.

$$h = \sqrt{8^2 - 2.5^2} \approx 7.6 \text{ in}$$

$$B = 5 \times 5 = 25 \text{ in}^2$$

$$V = \frac{1}{3}Bh = \left(\frac{1}{3}\right)(25)(7.6) \approx 63.3 \text{ in}^3$$