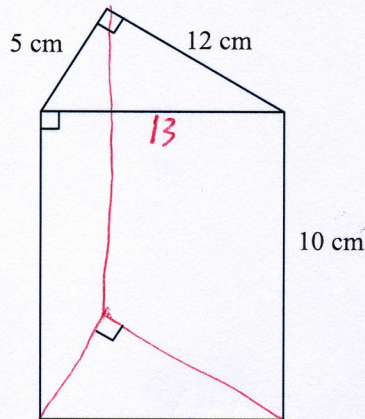


Answer the following. Be sure to include units. (Figures may not be drawn to scale.)

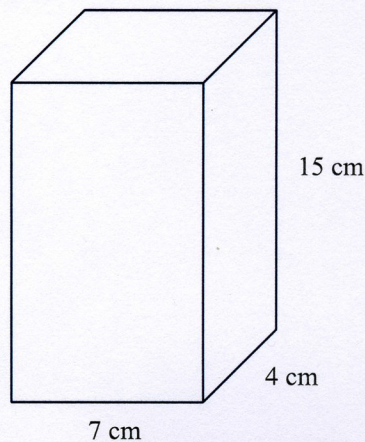
1. Given the following right triangular prism,



- a) Find the missing side length of the base. $\sqrt{5^2 + 12^2} = 13 \text{ cm}$
 b) Find the lateral area. $(12 \cdot 10) + (13 \cdot 10) + (5 \cdot 10) = 300 \text{ cm}^2$
 c) Find the total surface area. $300 + (2) \left(\frac{1}{2}\right) (5)(12) = 300 + 60 = 360 \text{ cm}^2$
 d) Find the volume.

$$V = Bh = \left(\frac{1}{2}\right)(5)(12)(10) = 300 \text{ cm}^3$$

2. Given the following right rectangular prism,

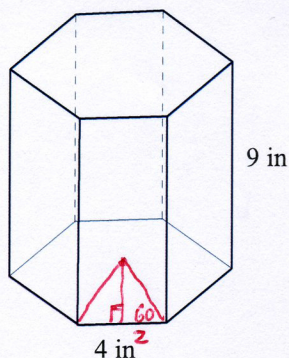


- a) Find the lateral area. (Assume that the bases are the 4x7 cm rectangles.) $(7+4+7+4) \cdot 15 = 330 \text{ cm}^2$
 b) Find the total surface area. $330 + (2)(4)(7) = 330 + 56 = 386 \text{ cm}^2$
 c) Find the volume.

$$V = Bh = (4)(7)(15) = 420 \text{ cm}^3$$

KEY

3. Given the following right regular hexagonal prism,



- a) Find the lateral area. $(6)(4)(9) = 216 \text{ in}^2$
 b) Find the total surface area. $216 + \left(\frac{1}{2}\right)(a)(p)(2) = 216 + \left(\frac{1}{2}\right)(24\sqrt{3})(24)(2)$
 c) Find the volume. $= 216 + (2 * 24\sqrt{3}) \approx 299.1 \text{ in}^2$

$$V = Bh = \frac{1}{2}ap h = \left(\frac{1}{2}\right)(24\sqrt{3})(24)(9)$$

$$\approx 374.1 \text{ in}^3$$

4. A rectangular prism with a square base has a height of 7 m and a volume of 175 m^3 .

- a) Find the dimensions of the square base. $V = Bh, B = \frac{V}{h} = \frac{175}{7} = 25 \text{ m}^2, 5 \times 5$
 b) Find the lateral area. $L = (4)(5)(7) = 140 \text{ m}^2$
 c) Find the total surface area.

$$S = (2)(25) + 140 = 190 \text{ m}^2$$

5. A rectangular prism has a square base, and the side of the square base is 3 in. If the volume of the prism is 108 in^3 ,

- a) Find the height of the prism. $V = Bh, h = \frac{V}{B} = \frac{108}{3 \cdot 3} = 12 \text{ in}$
 b) Find the lateral area. $L = (4)(3)(12) = 144 \text{ in}^2$
 c) Find the total surface area.

$$S = (2)(3 \cdot 3) + 144 = 162 \text{ in}^2$$

6. A cube has a lateral area of 144 cm^2 . Find the length of an edge.

$$L = 4s^2, 144 = 4s^2, s^2 = 36, s = 6 \text{ cm}$$

7. A cube has a total surface area of 96 m^2 . Find the length of an edge.

$$S = 6s^2, 96 = 6s^2, s^2 = 16, s = 4 \text{ m}$$

8. A cube has a volume of 343 cm^3 . Find the length of an edge.

$$V = s^3, 343 = s^3, s = 7 \text{ cm}$$