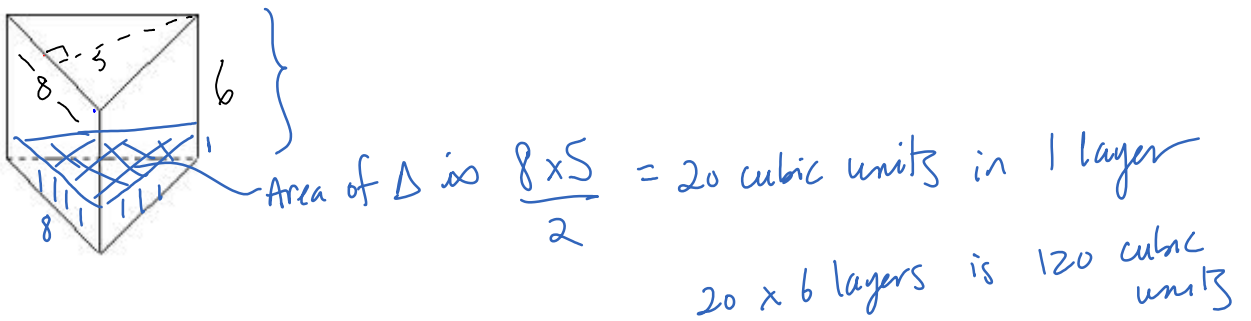
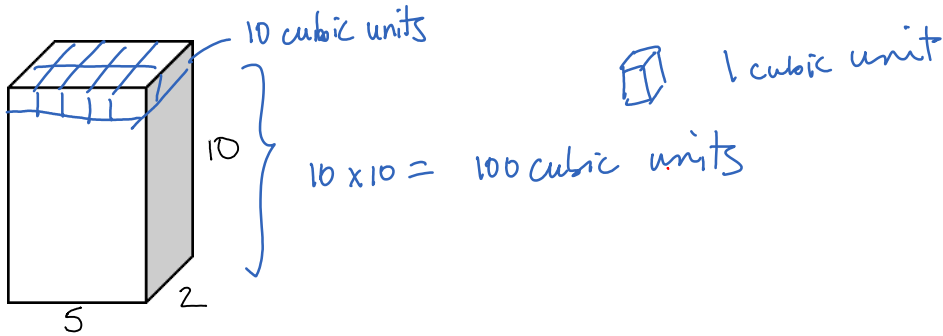
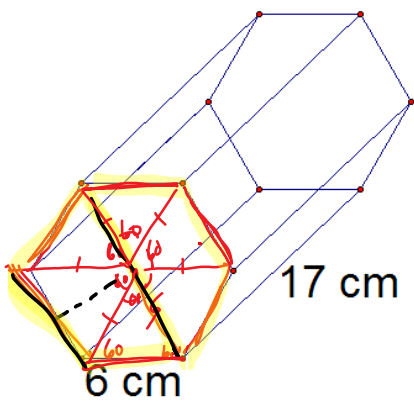


7.2 Volume of a Prism

Discuss how to find Volume given a prism.....(layers of base with height 1)



Regular hexagon based prism:



$$\frac{12 + 6}{2}$$

$$9 \times 5.2 \times 2 \times 17$$



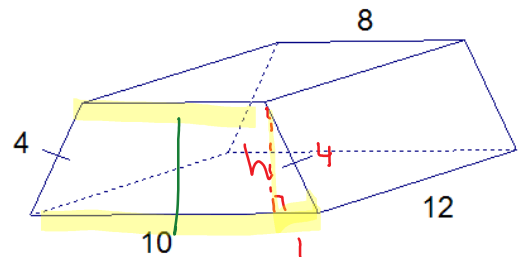
$$h = \sqrt{36 - 9}$$

$$h = \sqrt{27}$$

$$h = 5.2$$

$$\frac{5.2 \times 6 \times 6 \times 17}{2} = 1591.2$$

Trapezoidal prism



$$h^2 = 4^2 - 12$$

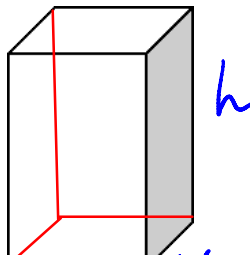
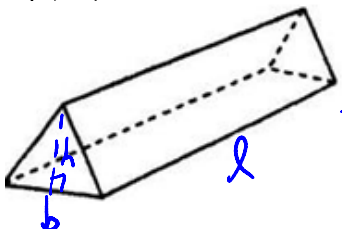
$$h^2 = 15$$

$$h = \sqrt{15}$$

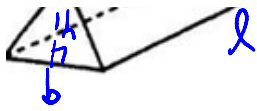
$$h = 3.9$$

$$\left(\frac{10 + 8}{2}\right) \times 3.9 \times 12 = 418.3 \text{ u}^3$$

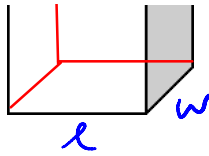
Formulas?



$$V = lwh$$



$$V = \frac{1}{2} b h l$$

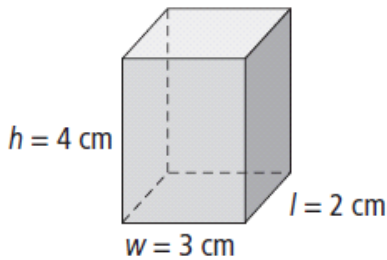


$$V = l w h$$

Formula for calculating the volume of a prism:

$$V = (\text{area of base}) \times \text{height of prism}$$

1. Calculate the volume



$$V = 3 \times 2 \times 4$$

$$V = 24 \text{ cm}^3$$

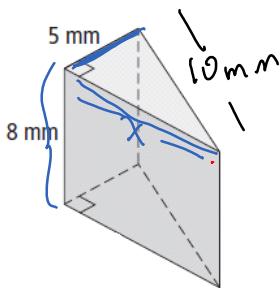
2. Calculate the volume of a cube with edge length 5 cm.



$$V = 5 \times 5 \times 5$$

$$V = 125 \text{ cm}^3$$

3. Calculate the volume.



$$x^2 = 10^2 - 5^2$$

$$x^2 = 75$$

$$x = \sqrt{75}$$

$$x = 8.66$$

$$V = \frac{1}{2} (5)(8.66)(8)$$

$$V = 173.2 \text{ mm}^3$$

Katie poured a bowl of cereal for breakfast.

If the box is only $\frac{5}{6}$ full, how much cereal is in the box?

$$V = 30 \times 18 \times 8$$

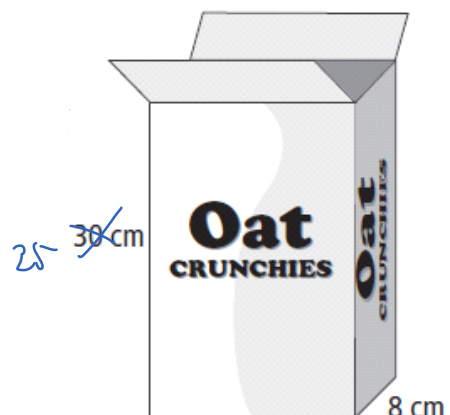
$$V = 4320 \text{ cm}^3$$

$$\frac{5}{6} \text{ of } 4320$$

$$\frac{5}{6} \text{ of } 30 = 25$$

$$V = 25 \times 18 \times 8$$

$$V = 3600 \text{ cm}^3$$

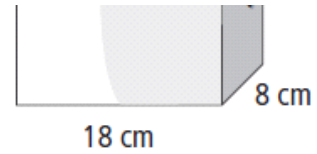


$$\frac{5}{6} \text{ of } 4320$$

$$\underline{3600 \text{ cm}^3}$$

$$V = L \times W \times H$$

$$V = 3600 \text{ cm}^3$$

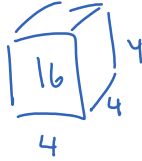


5. If the volume of a cube is 64 cm^3 , find the total surface area in cm^2 .

$$64 = x^3$$

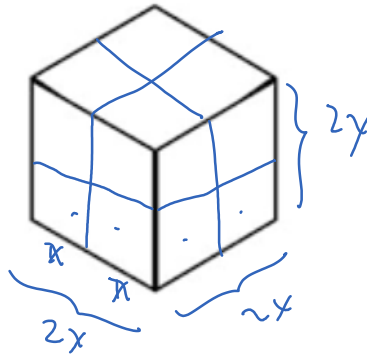
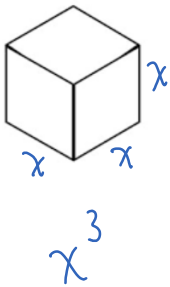
$$\sqrt[3]{64} = x$$

$$4 = x$$



$$16 \times 6 = 96 \text{ cm}^2$$

6. The sides of a cube are doubled in length to form a larger cube. Find the number of original small cubes required to fill the larger cube.

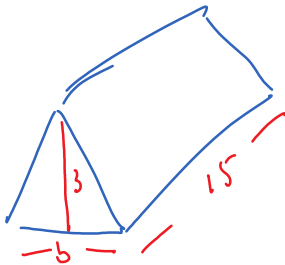


$$(2x)(2x)(2x)$$

$$8x^3$$

$$\underline{\underline{8}}$$

7. A triangular prism has a volume of 135 cm^3 . If the height of triangle is 3 and the height of the prism is 15, find the length of the base of the triangle.



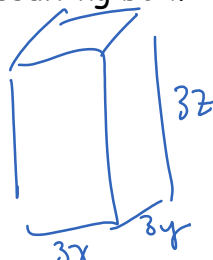
$$135 = \frac{1}{2} b (3) 15$$

$$\frac{135}{2 \cdot 2.5} = \frac{22.5 b}{22.5}$$

$$b = b$$

$$\underline{\underline{6 \text{ cm}}}$$

8. A rectangular box has volume 15 cm^3 . If the length, width, and height are tripled what is the volume of the resulting box?



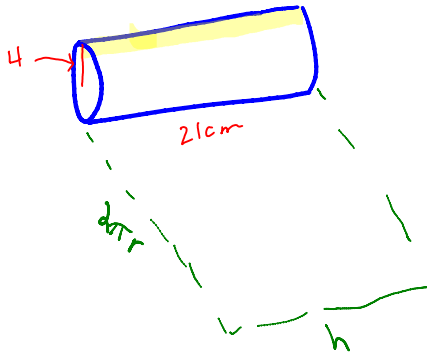
$$V = (3x)(3y)(3z) = 27xyz$$

$$= 27(15)$$

- ✓ a) 405 cm^3
- b) 120 cm^3
- c) 675 cm^3
- d) none of the above

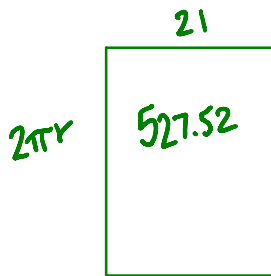
Assignment pg258 # 6-12 (letter c for each), 13,16,17-20,23-24

(last day ... might need help with.
p187 #13.

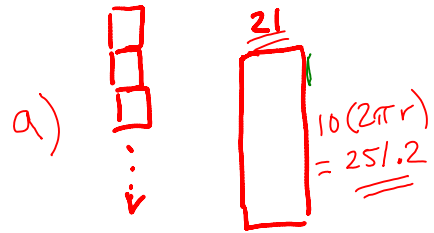


one roll is the area of the roll.

$$\begin{aligned} SA &= \cancel{2\pi r^2} + 2\pi r h \\ &= 2(3.14)(4)(21) \\ &= 527.52 \text{ cm}^2 \end{aligned}$$



... after 10 rolls



Total area...
 $= 10 \times 527.52$

b) $= 5275.5 \text{ cm}^2$