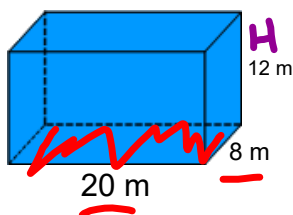




Warm Up Grade 8
solution



Find the volume (Show all work)



$$\begin{aligned} \text{Area of base} &= L \times W \\ &= 20 \text{ m} \times 8 \text{ m} \\ &= 160 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} V &= \text{Area of base} \times \text{height} \\ &= 160 \text{ m}^2 \times 12 \text{ m} \\ &= 1920 \text{ m}^3 \end{aligned}$$

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1. In Connect, the area of the base is 30cm^2 , so if the volume is 210cm^3 then the height must be 7cm

$$V = A_{\text{base}} \times h$$
$$210 = 30 \times \underline{7}$$

2. No, it does not matter which face you use as the base.

Draw sketches for each

4 a) $Vol = A_{\text{base}} \times h$

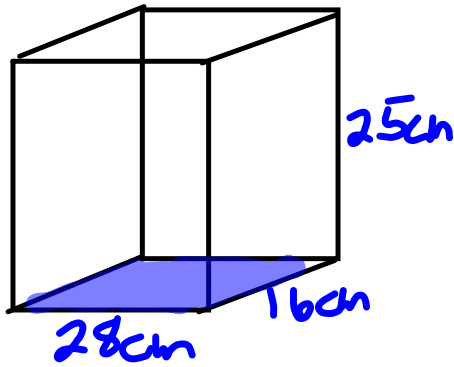
$$= 40 \times 3$$
$$= 120\text{cm}^3$$

b) $Vol = A_{\text{base}} \times h$

$$= 81 \times 9$$
$$= 729\text{cm}^3$$

c) $Vol = A_b \times h$

$$= 200 \times 30$$
$$= 6000\text{cm}^3$$

5.
a)

b)

$$\begin{aligned}
 A_{\text{base}} &= l \times w \\
 &= 28 \times 16 \\
 &= 448 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 V &= A_b \times h \\
 &= 448 \times 25 \\
 &= 11200 \text{ cm}^3
 \end{aligned}$$

b Sketches

$$\begin{aligned}
 \text{a) } A_{\text{base}} &= l \times w \\
 A &= 5 \times 8 \\
 &= 40 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 V &= A_b \times h \\
 &= 40 \times 3 \\
 &= 120 \text{ cm}^3
 \end{aligned}$$

$$\begin{aligned}
 \text{B } A_{\text{base}} &= l \times w \\
 &= 8 \times 3 \\
 &= 24 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 V &= A_b \times h \\
 &= 24 \times 5 \\
 &= 120 \text{ cm}^3
 \end{aligned}$$

$$\begin{aligned}
 \text{C } A_{\text{base}} &= l \times w \\
 &= 5 \times 3 \\
 &= 15 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 V &= A_b \times h \\
 &= 15 \times 8 \\
 &= 120 \text{ cm}^3
 \end{aligned}$$

b) The volume is the same for each

c) No the volume doesn't change when you change the position, the dimensions are still 3, 5 and 8 cm

7. Sketches

$$\begin{aligned} a) A_b &= l \times w \\ &= 5 \times 3 \\ &= 15 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} V &= A_b \times h \\ &= 15 \times 4.5 \\ &= 67.5 \text{ cm}^3 \end{aligned}$$

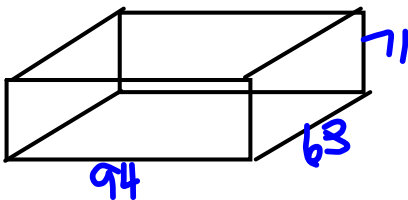
$$\begin{aligned} b) A_b &= l \times w \\ &= 7.5 \times 3.2 \\ &= 24 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} V &= A_b \times h \\ &= 24 \times 4 \\ &= 96 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} c) A_b &= l \times w \\ &= 3.5 \times 2.4 \\ &= 8.4 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} V &= A_b \times h \\ &= 8.4 \times 3 \\ &= 25.2 \text{ cm}^3 \end{aligned}$$

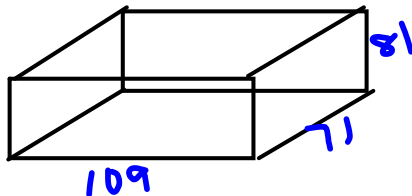
9. Rick



$$\begin{aligned} A_{\text{base}} &= l \times w \\ &= 94 \times 63 \\ &= 5922 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 5922 \times 71 \\ &= \underline{420462} \text{ cm}^3 \end{aligned}$$

Susan



$$\begin{aligned} A_b &= l \times w \\ &= 109 \times 71 \\ &= 7739 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 7739 \times 81 \\ &= \underline{626859} \text{ cm}^3 \end{aligned}$$

$$b) 400 \times 1 = 400$$

$$400 \times 2 = 800$$

$$400 \times 1.5 = 600$$


You would multiply the volume of Rick's by about 1.5 to get Susan's volume

Finding Volume of Triangular Prisms

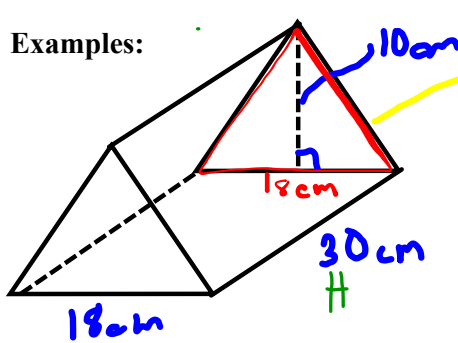
You can find the volume of any prism using the formula we stated yesterday.

$$\text{Volume} = \text{Area of base} \times \text{height}$$

First, determine the shape of the base, then find its area, finally multiply by the height of the prism.

Base shape of a triangular prism is ALWAYS a  _____

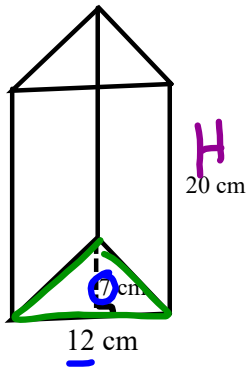
Examples:



$$\begin{aligned} A_{\text{base } \Delta} &= \frac{b \times h}{2} \\ &= \frac{18 \text{ cm} \times 10 \text{ cm}}{2} \\ &= \frac{180 \text{ cm}^2}{2} \\ A_{\text{bases}} &= 90 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} V &= A_{\text{bases}} \times H \\ &= 90 \text{ cm}^2 \times 30 \text{ cm} \\ &= \boxed{270 \text{ cm}^3} \end{aligned}$$

Ex 2)



$$\begin{aligned} A_{\text{bases}} &= \frac{b \times h}{2} \\ &= \frac{12 \text{ cm} \times 7 \text{ cm}}{2} \\ &= \frac{84 \text{ cm}^2}{2} \\ &= 42 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Volume} &= A_{\text{bases}} \times H \\ &= 42 \text{ cm}^2 \times 20 \text{ cm} \\ &= \boxed{840 \text{ cm}^3} \end{aligned}$$

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#5, #6, #7,
#8, #9 (don't sketch)
#10, #11

Class/Homework

page 205-206

#5, #6, #7, #8, #9(don't sketch), #10, #11

Test Next week on Unit 4 Volume & Surface Area

_____???