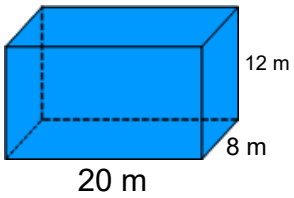
Warm Up Grade 8

Find the volume (Show all work)



$V = A_{base} \times H$

$= L \times W \times H$

$= 20m \times 8m \times 12m$

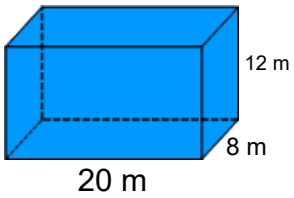
$= 160m^2 \times 12m$

$= 1920 m^3$

Warm Up Grade 8
solution

Jan. 22, 2014

Find the volume (Show all work)



Area of base = L x W

= 20 m x 8 m

= 160 m^2

V = Area of base x height

= 160 m^2 x 12 m

= 1920 m^3

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

$V = A_{base} \times h$

$210 = 30 \times 7$

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

Draw sketches for each

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

$= 40 \times 3$

$= 120 cm^3$

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

$= 81 \times 9$

$= 729 cm^3$

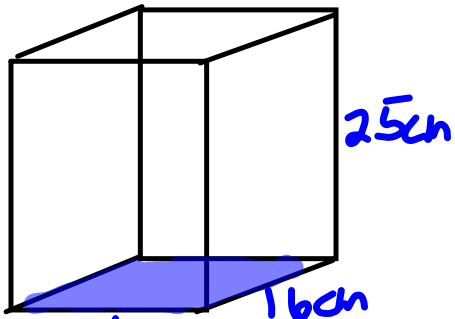
c) $Vol = A_b \times h$

$= 200 \times 30$

$= 6000 cm^3$

5.

a)



b)

$A_{base} = l \times w$
$= 28 \times 16$
$= 448 cm^2$

$V = A_b \times h$
$= 448 \times 25$
$= 112 \times 4 \times 25$
$= 11\,200 cm^3$

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6 Sketches

a) $A_{base} = l \times w$
$= 5 \times 8$
$= 40 cm^2$

$V = A_b \times h$
$= 40 \times 3$
$= 120 cm^3$

B $A_{base} = l \times w$
$= 8 \times 3$
$= 24 cm^2$

$V = A_b \times h$
$= 24 \times 5$
$= 120 cm^3$

C $A_{base} = l \times w$
$= 5 \times 3$
$= 15 cm^2$

$V = A_b \times h$
$= 15 \times 8$
$= 120 cm^3$

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

a) $A_b = l \times w$
$= 5 \times 3$
$= 15 cm^2$

$V = A_b \times h$
$= 15 \times 4.5$
$= 67.5 cm^3$

b) $A_b = l \times w$
$= 7.5 \times 3.2$
$= 24 cm^2$

$V = A_b \times h$
$= 24 \times 4$
$= 96 cm^3$

c) $A_b = l \times w$
$= 3.5 \times 2.4$
$= 8.4 cm^2$

$V = A_b \times h$
$= 8.4 \times 3$
$= 25.2 cm^3$

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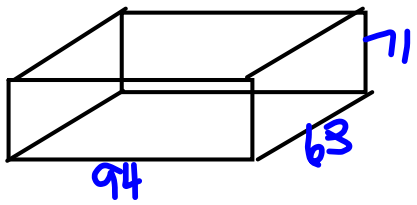
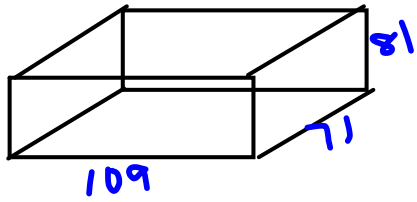
9. Rick



$A_{base} = l \times w$
$= 94 \times 63$
$= 5922 cm^2$

$Vol = A_b \times h$
$= 5922 \times 71$
$= 420\,462 cm^3$

Susan



$A_b = l \times w$
$= 109 \times 71$
$= 7739 cm^2$

$Vol = A_b \times h$
$= 7739 \times 81$
$= 626\,859 cm^3$

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

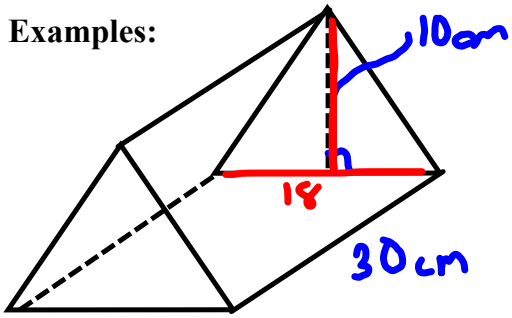
You can find the volume of any prism using the formula we stated yesterday.

Volume = Area of base x 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 Triangle

Examples:



$A_\Delta = \frac{b \times h}{2}$

$= \frac{18cm \times 10cm}{2}$

$= \frac{180cm^2}{2}$

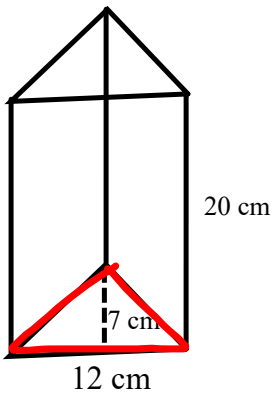
$= 90cm^2$

$V = A_{base\,\Delta} \times H$

$= 90cm^2 \times 30cm$

$= 2700cm^3$

Ex 2)



$A_\Delta = \frac{b \times h}{2}$

$= \frac{12cm \times 7cm}{2}$

$= \frac{84cm^2}{2}$

$A_\Delta = 42cm^2$

$V = A_{base\,\Delta} \times H_{box}$

$= 42cm^2 \times 20cm$

$= 840cm^3$

Class/Homework

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

Test Next week on Unit 4 Volume & Surface Area

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[redacted]
iday June 7