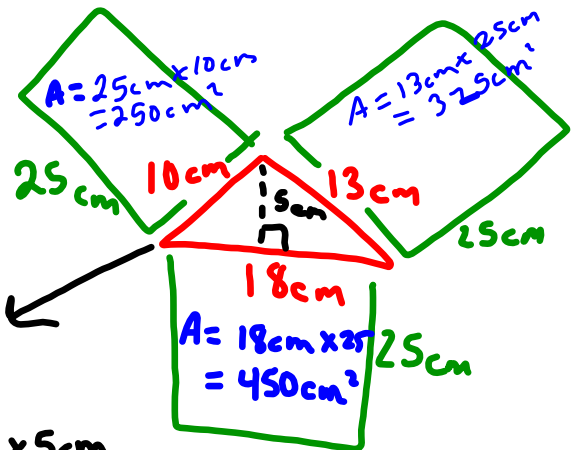
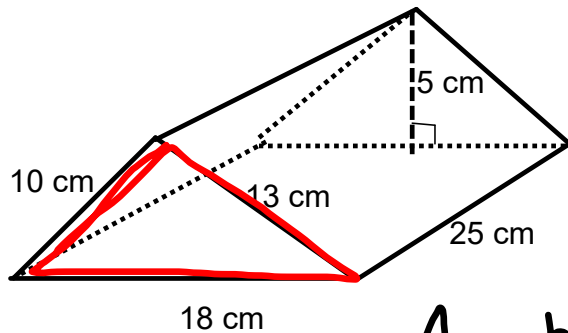


Warm Up Grade 8



Find the VOLUME and Surface Area



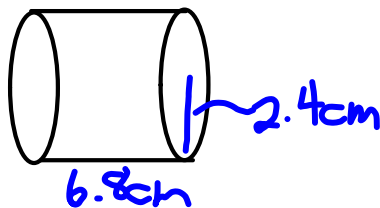
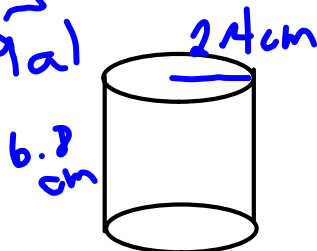
$$\begin{aligned}
 A_{\Delta} &= \frac{b \times h}{2} \\
 &= \frac{18 \text{ cm} \times 5 \text{ cm}}{2} \\
 &= \frac{90 \text{ cm}^2}{2} \\
 A_{\Delta} &= 45 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Total SA} &= 2\Delta + \square + \square + \square \\
 &= 2(45 \text{ cm}^2) + 250 \text{ cm}^2 + 450 \text{ cm}^2 + 325 \text{ cm}^2 \\
 &= 90 \text{ cm}^2 + 250 \text{ cm}^2 + 450 \text{ cm}^2 + 325 \text{ cm}^2 \\
 &= 1115 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Vol} &= A_{\text{base } \Delta} \times H_{\text{prism}} \\
 &= (45 \text{ cm}^2) \times 25 \text{ cm} \\
 &= 1125 \text{ cm}^3
 \end{aligned}$$

Pg 218

9a)



The volumes will be the same, both have a radius of 2.4cm and a height of 6.8cm. It is the same cylinder, just placed differently

10.

Bottle A

$$\begin{aligned} A_b &= \pi r^2 \\ &= 3.14 \times 3.5^2 \\ &= 38.465 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 38.465 \times 3 \\ &= 115.4 \text{ cm}^3 \end{aligned}$$

not big enough

Bottle B

$$\begin{aligned} A_b &= \pi r^2 \\ &= 3.14 \times 2^2 \\ &= 12.56 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 12.56 \times 6 \\ &= 75.36 \end{aligned}$$

not big enough

Bottle C

$$\begin{aligned} A_b &= \pi r^2 \\ &= 3.14 \times 3.5^2 \\ &= 38.465 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 38.465 \times 7 \\ &= 269.255 \text{ cm}^3 \end{aligned}$$

Bottle D

$$\begin{aligned} A_b &= \pi r^2 \\ &= 3.14 \times 1.5^2 \\ &= 7.065 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 7.065 \times 4 \\ &= 28.26 \end{aligned}$$

too small

Bottle C will hold the water

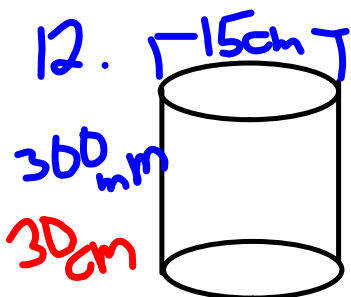
$$11. \quad h = 12 \text{ cm} \quad r = 3.5 \text{ cm}$$

$$A_b = \pi r^2 \\ = 3.14 \times 3.5^2 \\ = 38.465 \text{ cm}^2$$

$$\text{Vol} = A_b \times h \\ = 38.465 \times 12 \\ = 461.58 \text{ cm}^3 \\ \text{or } 461.58 \text{ ml}$$

$$b) \quad r = 12 \quad h = 3.5$$

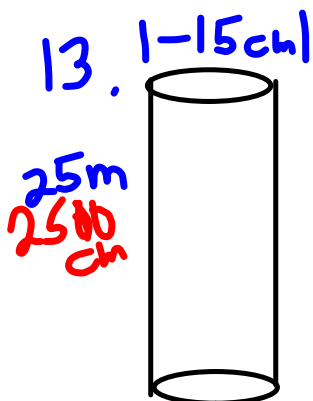
If the radius and height are switched, the new volume will be greater. You square the radius, and 12^2 is much bigger than 3.5^2



$$d = 15 \text{ cm} \\ r = 7.5 \text{ cm}$$

$$A_b = \pi r^2 \\ = 3.14 \times 7.5^2 \\ = 3.14 \times 56.25 \\ = 176.625 \text{ cm}^2$$

$$\text{Vol} = A_b \times h \\ = 176.625 \times 30 \\ = 5298.75 \text{ cm}^3$$



$$d = 15 \text{ cm}$$

$$r = 7.5$$

$$A = 176.625 \text{ cm}^2 \text{ (see \#12)}$$

$$\text{Vol} = A_b \times h$$

$$= 176.625 \times 2500$$

$$= 441562.5 \text{ cm}^3$$

$$1 \text{ m}^3 = \underline{1\,000\,000} \text{ cm}^3$$

of soil removed

$$\downarrow$$

$$0.442 \text{ m}^3$$

14. $r = 91 \text{ cm}$ $h = 122 \text{ cm}$

$$A_b = \pi r^2$$

$$= 3.14 \times 91^2$$

$$= 3.14 \times 8281$$

$$= 26062.34 \text{ cm}^2$$

$$\text{Vol} = A_b \times h$$

$$= 26062.34 \times 122$$

$$= 3172285.48 \text{ cm}^3$$

for one container

$$3172285.48 \times 3$$

$$9516856.44 \text{ cm}^3$$

$$\underline{9,516,856.44} \text{ m}^3$$

$$15. d = 7\text{cm} \quad h = 12\text{cm}$$

1.5cm left at top for expansion

Height of Conc in can
 $12 - 1.5 = 10.5\text{cm}$

$$\begin{aligned} A_b &= \pi r^2 \\ &= 3.14 \times 3.5^2 \\ &= 38.465\text{cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 38.465 \times 10.5 \\ &= 403.88\text{cm}^3 \end{aligned}$$

$$17. h = 10\text{m}$$

$$d = 3.5\text{m} \rightarrow r = 1.75$$

a)

$$\begin{aligned} A_b &= \pi r^2 \\ &= 3.14 \times 1.75^2 \\ &= 3.14 \times 3.0625 \\ &= 9.61625\text{m}^2 \end{aligned}$$

$$\begin{aligned} \text{Vol} &= A_b \times h \\ &= 9.61625 \times 10 \\ &= 96.1625\text{m}^3 \end{aligned}$$

b) 127 columns

$$\begin{aligned} \text{Total Volume} &= 96.1625 \times 127 \\ &= 12212.64\text{m}^3 \end{aligned}$$

Review for Test

Be able to draw nets of given solids
If given a net, be able to determine if it forms a solid

Volume

Be able to find the volume of a rectangular and triangular prism and cylinders
Know the units for volume (cubic units)

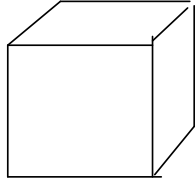
Surface Area

Be able to draw the faces and find the surface area for rectangular and triangular prisms and cylinders
Know the units for surface area (squared units)

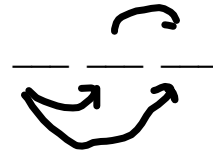
Be able to find the area of any required shape
If given the diameter, be able to find the radius and vice versa

Be able to solve problems involving volume and surface area

Know formulas and don't forget to write them with every question.

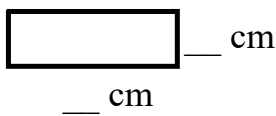


Surface Area of Rectangular Prism

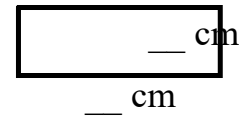
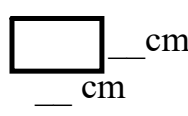


front/back

top/bottom



side/side



$$A = l \times w$$

$$= _ \text{ cm} \times _ \text{ cm}$$

$$= _ \text{ cm}^2$$

$$A = l \times w$$

$$= _ \text{ cm} \times _ \text{ cm}$$

$$= _ \text{ cm}^2$$

$$A = l \times w$$

$$= _ \text{ cm} \times _ \text{ cm}$$

$$= _ \text{ cm}^2$$

$$\text{Total SA} = 2 (\text{Top}) + 2 (\text{Side}) + 2 (\text{Front})$$

$$= 2 (_ \text{ cm}^2) + 2 (_ \text{ cm}^2) + 2 (_ \text{ cm}^2)$$

=

=

Surface Area of Rectangular Prism

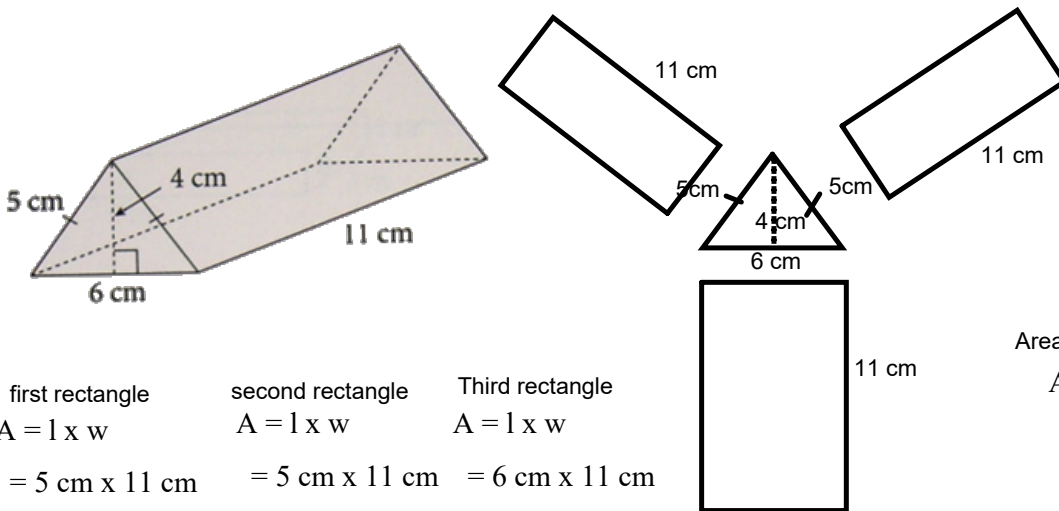
$$V = A_{\text{base top}} \times H_{\text{prism}}$$

$$= _ \text{ cm}^2 \times _ \text{ cm}$$

$$= _ \text{ cm}^3$$

Surface Area of Triangular Prism

Sketch a net of this right triangular prism.
What is its surface area?



first rectangle	second rectangle	Third rectangle
$A = l \times w$	$A = l \times w$	$A = l \times w$
$= 5 \text{ cm} \times 11 \text{ cm}$	$= 5 \text{ cm} \times 11 \text{ cm}$	$= 6 \text{ cm} \times 11 \text{ cm}$
$= 55 \text{ cm}^2$	$= 55 \text{ cm}^2$	$= 66 \text{ cm}^2$

Area of Triangle face

$$A = \frac{b \times h}{2}$$

$$= \frac{6 \text{ cm} \times 4 \text{ cm}}{2}$$

$$= \underline{24 \text{ cm}^2}$$

$$\frac{24 \text{ cm}^2}{2}$$

$$= 12 \text{ cm}^2$$

Total S.A = 2 triangles + rectangle + rectangle + rectangle

$$= 2 (12 \text{ cm}^2) + 55 \text{ cm}^2 + 55 \text{ cm}^2 + 66 \text{ cm}^2$$

$$= 24 \text{ cm}^2 + 55 \text{ cm}^2 + 55 \text{ cm}^2 + 66 \text{ cm}^2$$

$$= 200 \text{ cm}^2$$

Volume Of Triangular Prism

Area of Triangle face

$$A = \frac{b \times h}{2}$$

$$= \frac{6 \text{ cm} \times 4 \text{ cm}}{2}$$

$$= \underline{24 \text{ cm}^2}$$

$$\frac{24 \text{ cm}^2}{2}$$

$$= 12 \text{ cm}^2$$

$$V = A_{\text{base}} \times H_{\text{prism}}$$

$$= 12 \text{ cm}^2 \times 11 \text{ cm}$$

$$= 132 \text{ cm}^3$$

Steps to Find Surface Area of Cylinders

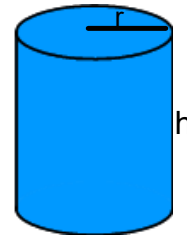
Step 1) Area of circle = πr^2

$$= \pi \times r \times r$$

Step 2) Area of Curved Rectangle = $b \times h$

$$= (2\pi r) \times h$$

$$= 2 \times \pi \times r \times h$$



Step 2) Surface Area of Cylinder = $2(\text{Area of Circle}) + (\text{Area of Curved Rectangle})$

Volume of A Cylinder

Volume = Area of the base \times H

= Area of a Circle \times H

Class/Homework

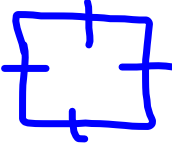
Test Review worksheet

Tuesday

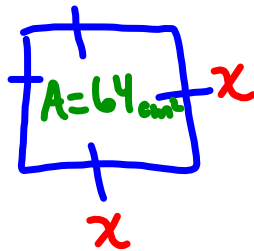
Test ~~Friday~~ Remember

on # 5 $K = 8$ and it is the isosceles triangle

2) $SA_{\text{cube}} = 384 \text{ cm}^2$
 \hookrightarrow 6 equal faces \hookrightarrow Square



a) $384 \text{ cm}^2 \div 6 = 64 \text{ cm}^2$ (Area of 1 face)



b) Volume = $A_{\text{base}} \times H_{\text{prism}}$
 $64 \text{ cm}^2 \times 8 \text{ cm}$
 512 cm^3

c) Side $s_6 = \sqrt{\text{Area}}$
 $= \sqrt{64}$
 $= 8 \text{ cm}$
 L, W, H
 $8 \text{ cm}, 8 \text{ cm}, 8 \text{ cm}$

Attachments

gr 8 u4 measurement test REVIEW ASSIGNMENT.pdf