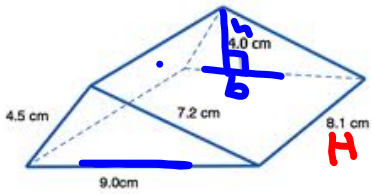
Warm Up Grade 8

June 9, 2021

Find the volume

$V_{\triangle} = A_{base\triangle} \times H$



$A_{base\triangle} = \frac{b \times h}{2}$

$= \frac{9cm \times 4cm}{2}$

$= \frac{36cm^2}{2}$

$A_{base\triangle} = 18cm^2$

$V_{\triangle prism}$

$= A_{base\triangle} \times H$

$= 18cm^2 \times 8.1cm$

$= 145.8\ cm^3$

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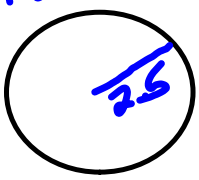
1. In Ex. 2, the SA of label is 110 cm^2

Area of Bottom

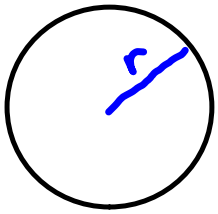


$A_{bot} = \pi r^2$
$= 3.14 \times 2.5^2$
$= 3.14 \times 6.25$
$= 19.625$

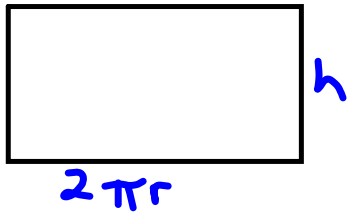
SA = Bottom + Label
$= 19.625 + 110$
$= 129.625\ cm^2$

2. SA = 2 × A circle + Area of Rect

$= \underbrace{2\pi r^2}_{\text{Area}} + \underbrace{2\pi r}_{\text{Circumference}} h$

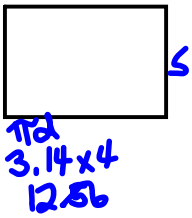


$A_{\pi r^2}$



3. The SA of a cylinder is always approx because of π. (We round to 3.14)

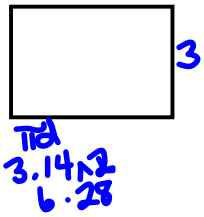
4. $A_o = \pi r^2$
$= 3.14 \times 2^2$
$= 3.14 \times 4$
$= 12.56 cm^2$



$A = l \times w$
$= 12.56 \times 5$
$= 62.8 cm^2$

$SA = 2 \times 12.56 + 62.8$
$= 25.12 + 62.8$
$= 87.92 cm^2$

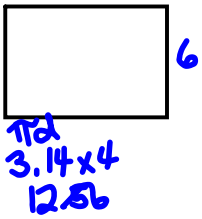
b) $A_o = \pi r^2$
$= 3.14 \times 1^2$
$= 3.14 cm^2$



$A = l \times w$
$= 6.28 \times 3$
$= 18.84 cm^2$

$SA = 2 \times 3.14 + 18.84$
$= 6.28 + 18.84$
$= 25.12 cm^2$

c) $A_o = \pi r^2$
$= 3.14 \times 2^2$
$= 3.14 \times 4$
$= 12.56 cm^2$



$A = l \times w$
$= 12.56 \times 6$
$= 75.36 cm^2$

$SA = 2 \times 12.56 + 75.36$
$= 25.12 + 75.36$
$= 100.48 cm$

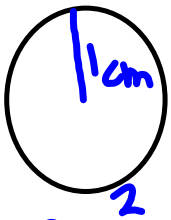
5. a) Cylinder Base with radius - 2cm
height - 5cm

b) Cylinder Base with radius - 1cm
height - 3cm

c) Cylinder Base with radius - 2cm
height - 6cm

6.

a)



$A = \pi r^2$
$= 3.14 \times 1^2$
$= 3.14\ cm^2$

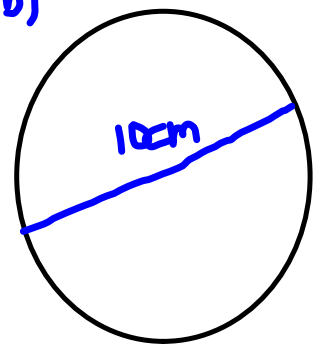
Curved Surface

3.14×2
6.28

$A = l \times w$
$= 6.28 \times 8$
$= 50.24\ cm^2$

Area of Curved Surface
$50.24\ cm^2$

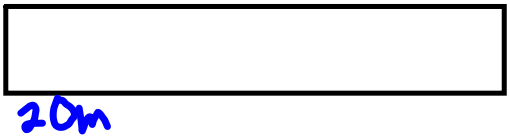
b)



3.14×10
$31.4cm$

Area of Curved $= l \times w$
$= 31.4 \times 3$
$= 94.2\ cm^2$

c)



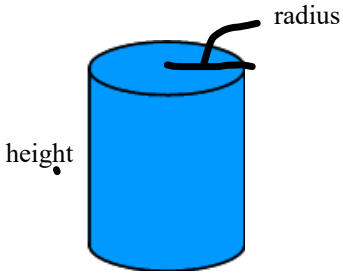
3.14×4
$12.5m$

Area of Curved $= l \times w$
$= 12.56 \times 20$
$= 251.2\ m^2$

From last day

Surface Area of a Cylinder

When finding the surface area of a cylinder, you still have to find the area of the faces then add them. However, what are the shapes of the faces?

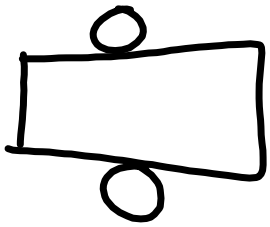


The top and bottom are both _____

If you unroll the curved face of the cylinder, you will get a _____

One side of the _____ is the _____ of the cylinder,
and
the other side of the _____ is the _____ of the circle

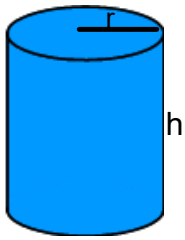
Step 1) Find the area of the circle
Step 2) Find the circumference of the circle
Step 3) Find the area of the rectangle A = bxh
= circumference x h
Step 4) Find the Total SA = 2Circles +Rectangle



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 x h

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

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

b x h

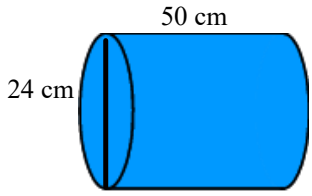
Cir
$2\pi r$
H

Step 2) Surface Area of Cylinder = 2(Area of Circle) + (Area of Curved Rectangle)

$$= 2\pi r^2 + 2\pi r H$$

$$= \underbrace{2(3.14) \times r \times r}_{\text{multiply}} + \underbrace{2(3.14)(r) \times (H)}_{\text{multiply}}$$

Find the surface area



Your Turn

SA_{cyl}

$= 2\pi r^2 + 2\pi r H$

$r \times r$

$= \underbrace{2(3.14)\times(12cm)\times(12cm)}_{904.32\,cm^2} + 2(3.14)\times(12cm)\times(50cm)$

$904.32\,cm^2 + 3768\,cm^2$

$= 4672.32\,cm^2$

Given

$d = 24cm$

$r = 12cm$

$H = 50cm$

Volume of a Cylinder

We use the same formula to find the volume of a cylinder.

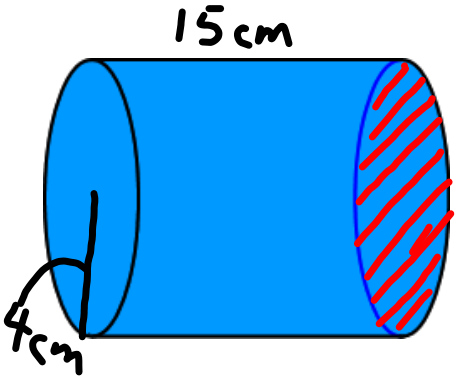
☆ Volume = Area of the base x height ☆

What is the base of a cylinder? _____

☆ Area of Circle = πr^2 ☆

$A_{base\,o} = (3.14) \times r \times r$

Examples:



$r = 4cm$

$H = 15cm$

$A_{base\,o} = \pi r^2$

$= 3.14 \times (4cm) \times (4cm)$

$= 50.24 cm^2$

$V_{cyl} = A_{base_o} \times H$

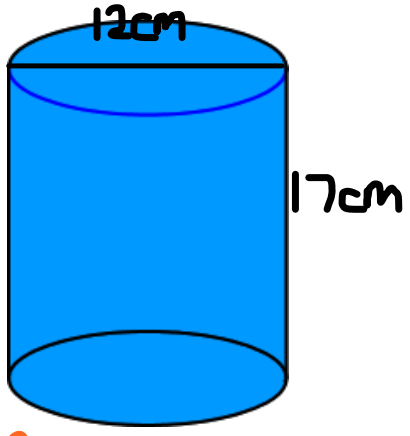
$V_{cy} = A_{base\,o} \times H$

$= 50.24 cm^2 \times 15cm$

$= 753.6 cm^3$

Ex 2)

Volume



Given

d = 12cm

r = 6cm

H = 17cm

$A_{base\,o} = \pi r^2$

$= 3.14 \times (6cm) \times (6cm)$

$A_{base\,o} = 113.04\,cm^2$

$V_{cyl} = A_{base\,o} \times H$

$= 113.04\,cm^2 \times 17cm$

$= 1921.68\,cm^3$

Class/Homework

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#9, #10,

$SA_{cyl} = \underbrace{2 \times 3.14 \times r \times r} + \underbrace{2 \times 3.14 \times r \times H}$

pg. 218 #5, 6,

$A_{base} = \pi \times r^2$
$= 3.14 \times r \times r$

$V = A_{base} \times H$

Homework
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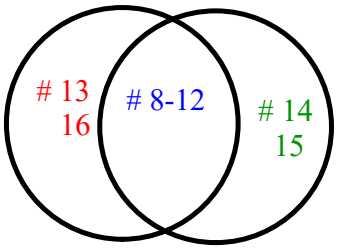
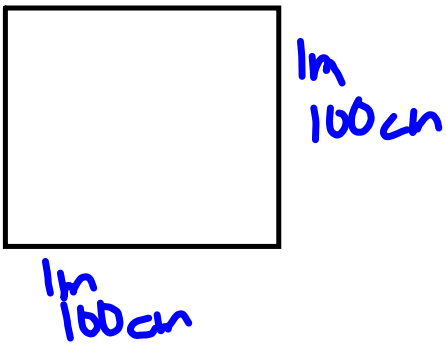


11. 1m = 100 cm



$1m^2 = 10\ 000\ cm^2$
(100 x 100)

$40m^2 =$ 400 000 cm^2