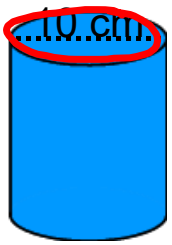
Warm Up Grade 8

May 25, 2018

Find the Surface Area



diameter = 10cm
r = 5cm
height

$SA_{cyl} = 2\pi r^2 + 2\pi r H$

$= 2 \times 3.14 \times (5cm)^2 + 2 \times 3.14 \times (5cm)(20cm)$

$= 2 \times 3.14 \times 25cm^2 + 2 \times 3.14 \times 5cm \times 20cm$

$157\ cm^2 + 628\ cm^2$

$785\ cm^2$

Homework pg. 213 # 8-12, 16

8a)

$r = 2$

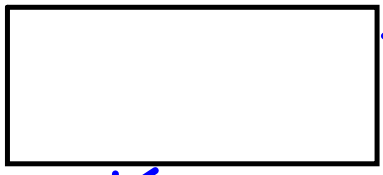
$d = 4$

$A = \pi r^2$

$= 3.14 \times 2^2$

$= 3.14 \times 4$

$= 12.56 cm^2$



πd

3.14×4

12.56

15cm

$A = l \times w$

$= 15 \times 12.56$

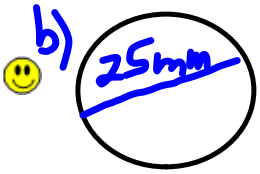
$= 188.4$

$SA = 2 \times 12.56 + 188.4$

$= 25.12 + 188.4$

$= 213.52 cm^2$

b)



$d = 25$

$r = 12.5$

πd

3.14×25

78.5

230mm

$A = \pi r^2$

$= 3.14 \times 12.5^2$

$= 3.14 \times 156.25$

$= 490.625 mm^2$

$A = l \times w$

$= 230 \times 78.5$

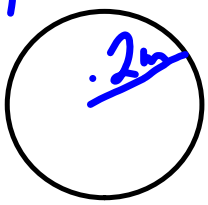
$= 18055$

$SA = 2 \times 490.625 + 18055$

$= 981.25 + 18055$

$= 19036.25 mm^2$

c)



$r = 0.2$
$d = 0.4$

πd
3.14×0.4
1.256

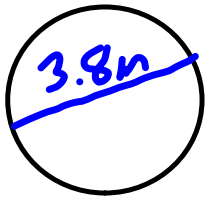
2.8

$A = \pi r^2$
$= 3.14 \times 0.2^2$
$= 3.14 \times 0.04$
$= 0.1256\ m^2$

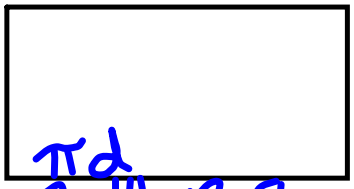
$A = l \times w$
$= 2.8 \times 1.256$
$= 3.5168\ m^2$

$SA = 2 \times 0.1256 + 3.5168$
$= 0.2512 + 3.5168$
$= 3.768\ m^2$

9.



$d = 3.8$
$r = 1.9$



12.7

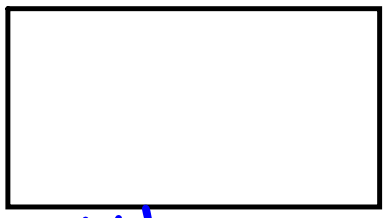
πd
3.14×3.8
11.932

$A = \pi r^2$
$= 3.14 \times 1.9^2$
$= 3.14 \times 3.61$
$= 11.3354\ m^2$

$A = l \times w$
$= 11.932 \times 12.7$
$= 151.5364$

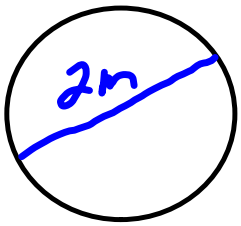
$SA = 2 \times 11.3354 + 151.5364$
$= 22.6708 + 151.5364$
$= 174.2072\ m^2$

10. Curved Face

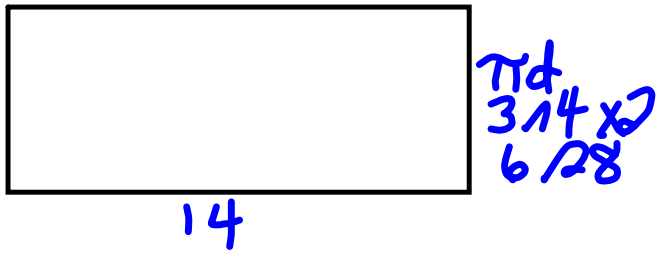


$A = l \times w$
$= 4.71 \times 2.5$
$= 11.775 m^2$

11 a)



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



$A = l \times w$
$= 14 \times 6.28$
$= 87.92 cm^2$

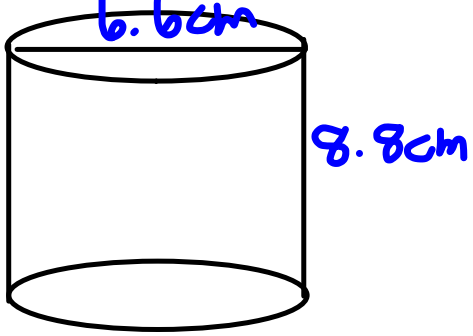
$SA = 2 \times 3.14 + 87.92$
$= 6.28 + 87.92$
$= 94.2 cm^2$

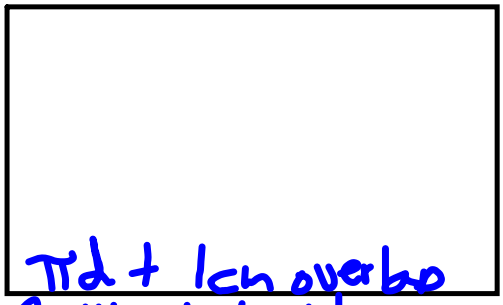
b) $1 m^2 = 10\,000 cm^2$
$40 m^2 = 400\,000 cm^2$

$\frac{400000}{94.2} = 4246.3$

4246 cylinders can be painted

12.





$3.14 \times 6.6 + 1$

$20.724 + 1$

21.724

$A = l \times w$

$= 21.724 \times 8.8$

$= 191.17 cm^2$

13.

$d = 6.5cm$

$= 0.65m$

$r = 0.325m$

πd

3.14×0.65

2.041

$A = \pi r^2$

$= 3.14 \times 0.325^2$

$= 3.14 \times 0.105625$

$= 0.3316$

$A = l \times w$

$= 2.041 \times 1.5$

$= 3.0615$

$SA = 2 \times 0.3316 + 3.0615$

$= 0.6632 + 3.0615$

$= 3.7247 m^2$

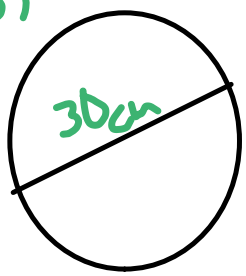
$37247 cm^2$

14. a) Shell is the curved face

$A = l \times p$
$= 94.2 \times 30$
$= 2826 cm^2$

5 layers
$5 \times 2826_2$
$14\,130 cm$
of sheathing needed

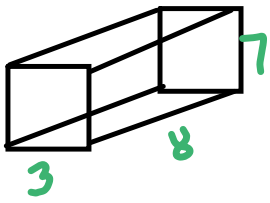
b)

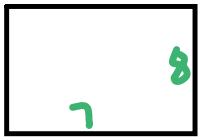


$A = \pi r^2$
$= 3.14 \times 15^2$
$= 3.14 \times 225$
$= 706.5$

2 heads 706.5×2
$1413 cm^2$

15. Rectangular Box



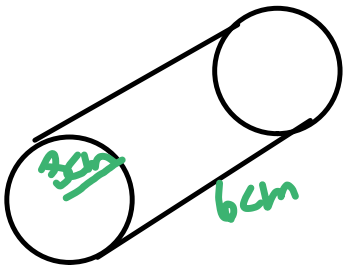


$A = l \times w$
$= 8 \times 7$
$= 56 cm^2$

$A = l \times w$
$= 7 \times 3$
$= 21 cm^2$

$A = l \times w$
$= 8 \times 3$
$= 24 cm^2$

$SA = 2 \times 56 + 2 \times 21 + 2 \times 24$
$= 112 + 42 + 48$
$= 202 cm^2$



$A = \pi r^2$
$= 3.14 \times 3^2$
$= 3.14 \times 9$
$= 28.26$

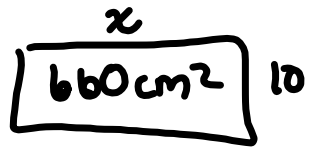
πd
3.14×6
18.84

$A = l \times w$
$= 18.84 \times 6$
$= 113.04$

$SA = 2 \times 28.26 + 113.04$
$= 56.52 + 113.04$
$= 169.56 cm^2$

The cylindrical tube uses less material

16. Curved SA = 660cm²
Height 10cm



$x = \frac{660}{10}$

$x = 66$

↑ circum

$2\pi r = 66$

$\frac{6.28r}{6.28} = \frac{66}{6.28}$

$r = 10.5$

a) $A = l \times w$
$= Cir \times h$
$660 = Cir \times 10$
$66 = Cir$

b) $Cir = \pi d$
$66 = 3.14 \times d$
$\frac{66}{3.14} = d$
$21.02 = d$

radius $= \frac{21.02}{2}$
$= 10.51cm$

c) $A_0 = \pi r^2$
$= 3.14 \times 10.51^2$
$= 3.14 \times 110.4601$
$= 346.84$

d) SA = 2 Circular Bases + Curved Face
$= 2 \times 346.84 + 660$
$= 693.68 + 660$
$= 1353.68cm^2$

Volume of a Cylinder

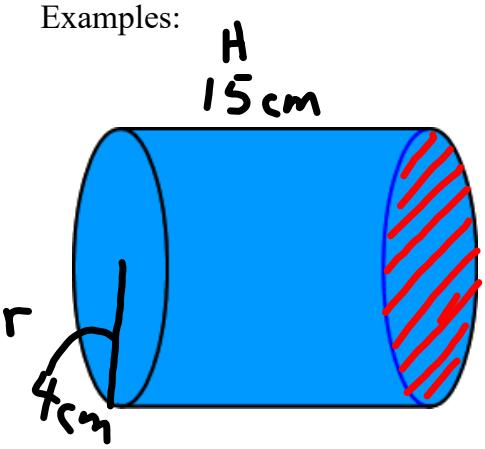
We use the same formula to find the volume of a cylinder.

Volume = Area of the base x height

What is the base of a cylinder? _____

Area of Circle = πr^2

Examples:



$V = A_{base} \times H$

$= \pi r^2 \times H$

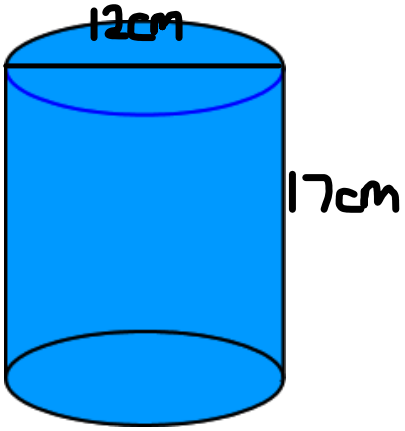
$= 3.14 \times (4cm)^2 \times 15cm$

$= 3.14 \times 16cm^2 \times 15cm$

$= 753.6\ cm^3$

Ex 2)

Your Turn



$V = A_{base} \times H$

$= 113.03cm^2 \times 17cm$

$= 1921.68 cm^3$

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

$= 3.14 \times (6cm)^2$

$= 3.14 \times 36cm^2$

$= 113.04cm^2$

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