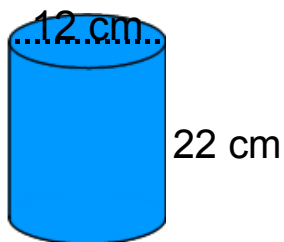


Warm Up Grade 8

May 24, 2016



Find the Surface Area



$$d = 12 \text{ cm}$$

$$r = 6 \text{ cm}$$

$$\begin{aligned}
 S.A_{cy} &= 2\pi r^2 + 2\pi rH \\
 &= 2(3.14)(6)^2 + 2(3.14)(6)(22) \\
 &= 2(3.14)(36) + 2(3.14)(6)(22) \\
 &= 226.08 + 828.96 \\
 &= 1055.04 \text{ cm}^2
 \end{aligned}$$

- 1) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(2m)^2 + 2(3.14)(2m)(7m)$
 $= 2(3.14)(4m^2) + 2(3.14)(2m)(7m)$
 $= 25.12 m^2 + 87.92 m^2$
 $= 113.04 m^2$
- 2) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(10ft)^2 + 2(3.14)(10ft)(13ft)$
 $= 2(3.14)(100ft^2) + 2(3.14)(10ft)(13ft)$
 $= 628 ft^2 + 816.4 ft^2$
 $= 1444.4 ft^2$
- 3) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(6cm)^2 + 2(3.14)(6 cm)(12 cm)$
 $= 2(3.14)(36 cm^2) + 2(3.14)(6 cm)(12 cm)$
 $= 226.08 cm^2 + 452.16 cm^2$
 $= 678.24 cm^2$
- 4) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(9cm)^2 + 2(3.14)(9 cm)(11 cm)$
 $= 2(3.14)(81 cm^2) + 2(3.14)(9 cm)(11 cm)$
 $= 508.68 cm^2 + 621.72 cm^2$
 $= 1130.4 cm^2$
- 5) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(6ft)^2 + 2(3.14)(6ft)(13ft)$
 $= 2(3.14)(36ft^2) + 2(3.14)(6ft)(13ft)$
 $= 226.08 ft^2 + 489.84 ft^2$
 $= 715.92 ft^2$
- 6) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(8ft)^2 + 2(3.14)(8ft)(13ft)$
 $= 2(3.14)(64ft^2) + 2(3.14)(8ft)(13ft)$
 $= 401.92 ft^2 + 653.12 ft^2$
 $= 1055.04 ft^2$
- 7) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(10m)^2 + 2(3.14)(10m)(15m)$
 $= 2(3.14)(100m^2) + 2(3.14)(10m)(15m)$
 $= 628 m^2 + 942 m^2$
 $= 1570 m^2$
- 8) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(6in)^2 + 2(3.14)(6in)(15in)$
 $= 2(3.14)(36in^2) + 2(3.14)(6in)(15in)$
 $= 226.08 in^2 + 565.2 in^2$
 $= 791.28 in^2$
- 9) $SA = 2\pi r^2 + 2\pi rh$
 $= 2(3.14)(4m)^2 + 2(3.14)(4mm)(9mm)$
 $= 2(3.14)(16m^2) + 2(3.14)(4mm)(9mm)$
 $= 100.48 mm^2 + 226.08 mm^2$
 $= 326.56 mm^2$

Homework pg. 213# 8-12, 16

8a)



$$r=2$$

$$d=4$$



$$\pi d$$

$$3.14 \times 4$$

$$12.56$$

$$A = \pi r^2$$

$$= 3.14 \times 2^2$$

$$= 3.14 \times 4$$

$$= 12.56 \text{ cm}^2$$

15cm

$$A = l \times w$$

$$= 15 \times 12.56$$

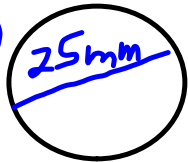
$$= 188.4$$

$$SA = 2 \times 12.56 + 188.4$$

$$= 25.12 + 188.4$$

$$= 213.52 \text{ cm}^2$$

b)



$$d=25$$

$$r=12.5$$



$$\pi d$$

$$3.14 \times 25$$

$$78.5$$

230mm

$$A = \pi r^2$$

$$= 3.14 \times 12.5^2$$

$$= 3.14 \times 156.25$$

$$= 490.625 \text{ mm}^2$$

$$A = l \times w$$

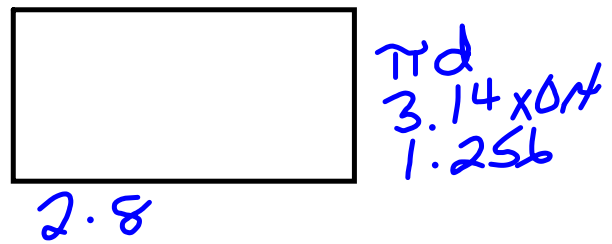
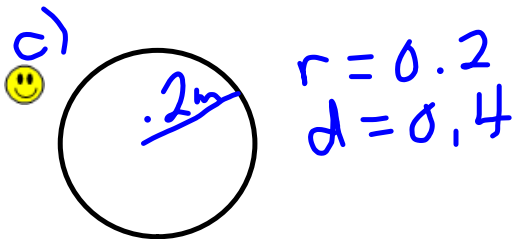
$$= 230 \times 78.5$$

$$= 18055$$

$$SA = 2 \times 490.625 + 18055$$

$$= 981.25 + 18055$$

$$= 19036.25 \text{ mm}^2$$



$$A = \pi r^2$$

$$= 3.14 \times 0.2^2$$

$$= 3.14 \times 0.04$$

$$= 0.1256 \text{ m}^2$$

$$A = l \times w$$

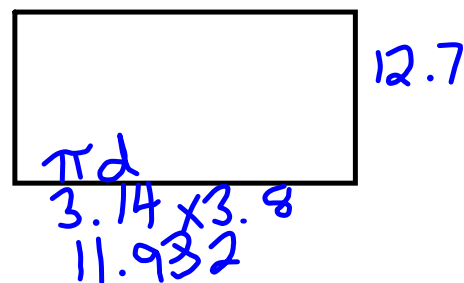
$$= 2.8 \times 1.256$$

$$= 3.5168 \text{ m}^2$$

$$SA = 2 \times 0.1256 + 3.5168$$

$$= 0.2512 + 3.5168$$

$$= 3.768 \text{ m}^2$$



$$A = \pi r^2$$

$$= 3.14 \times 1.9^2$$

$$= 3.14 \times 3.61$$

$$= 11.3354 \text{ m}^2$$

$$A = l \times w$$

$$= 11.932 \times 12.7$$

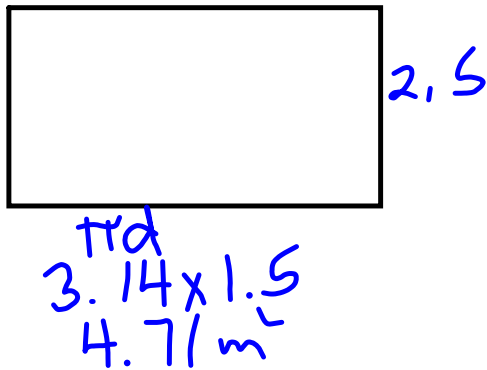
$$= 151.5364$$

$$SA = 2 \times 11.3354 + 151.5364$$

$$= 22.6708 + 151.5364$$

$$= 174.2072 \text{ m}^2$$

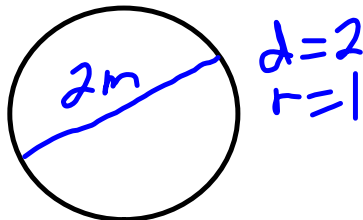
10. Curved Face



$$A = l \times w$$

$$= 4.71 \times 2.5$$

$$= 11.775 \text{ m}^2$$

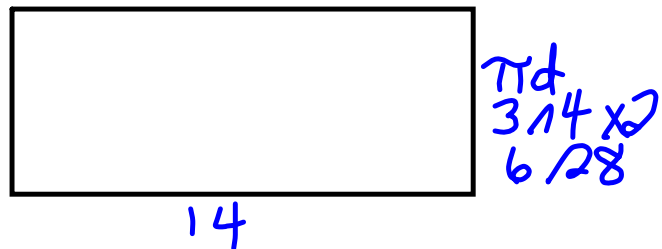


$$A = \pi r^2$$

$$= 3.14 \times 1^2$$

$$= 3.14 \times 1$$

$$= 3.14 \text{ cm}^2$$



$$A = l \times w$$

$$= 14 \times 6.28$$

$$= 87.92 \text{ cm}^2$$

$$SA = 2 \times 3.14 + 87.92$$

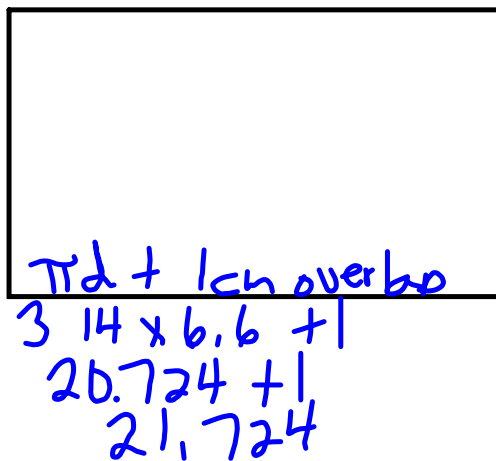
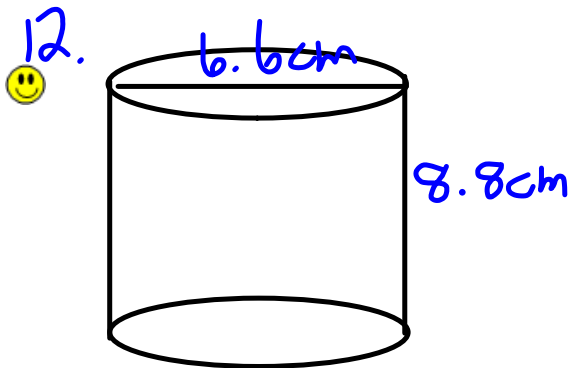
$$= 6.28 + 87.92$$

$$= 94.2 \text{ cm}^2$$

☺ b) $1 \text{ m}^2 = 10\,000 \text{ cm}^2$
 $40 \text{ m}^2 = 400\,000 \text{ cm}^2$

$$\frac{400\,000}{94.2} = 4246.3$$

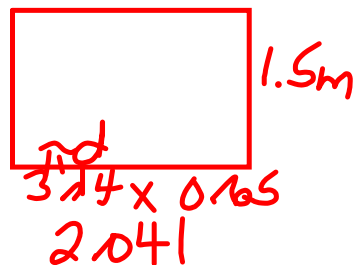
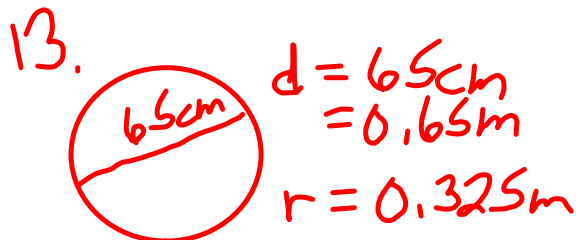
4246 cylinders can be painted



$$A = l \times w$$

$$= 21.724 \times 8.8$$

$$= 191.17 \text{ cm}^2$$



$$A = \pi r^2$$

$$= 3.14 \times 0.325^2$$

$$= 3.14 \times 0.105625$$

$$= 0.3316$$

$$A = l \times w$$

$$= 2.041 \times 1.5$$

$$= 3.0615$$

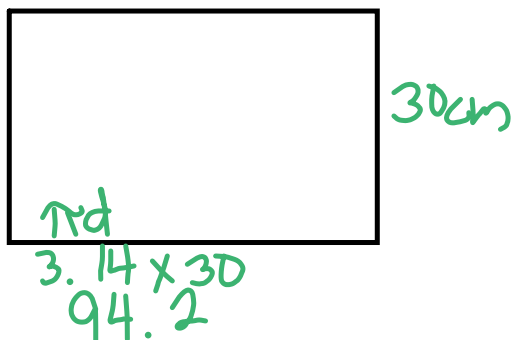
$$SA = 2 \times 0.3316 + 3.0615$$

$$= 0.6632 + 3.0615$$

$$= 3.7247 \text{ m}^2$$

$$37247 \text{ cm}^2$$

14. a) Shell is the curved face



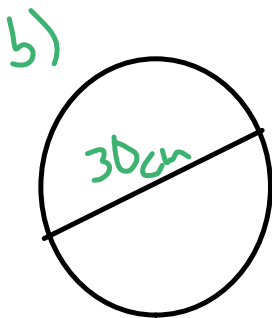
$$\begin{aligned} A &= l \times w \\ &= 94.2 \times 30 \\ &= 2826 \text{ cm}^2 \end{aligned}$$

5 layers

$$5 \times 2826$$

$$14130 \text{ cm}^2$$

of sheathing needed

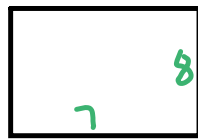
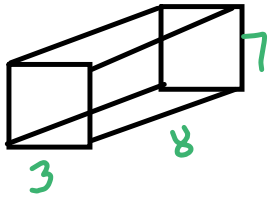


$$\begin{aligned} A &= \pi r^2 \\ &= 3.14 \times 15^2 \\ &= 3.14 \times 225 \\ &= 706.5 \end{aligned}$$

2 heads

$$\begin{aligned} &706.5 \times 2 \\ &1413 \text{ cm}^2 \end{aligned}$$

15. Rectangular Box



$$\begin{aligned} A &= l \times w \\ &= 8 \times 7 \\ &= 56 \text{ cm}^2 \end{aligned}$$

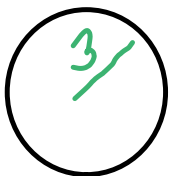
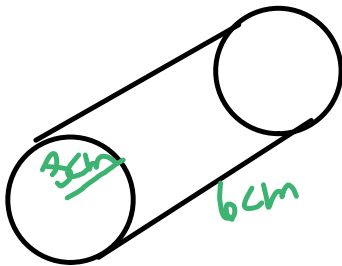


$$\begin{aligned} A &= l \times w \\ &= 7 \times 3 \\ &= 21 \text{ cm}^2 \end{aligned}$$

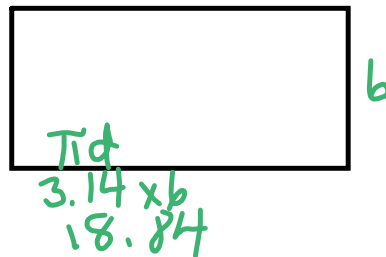


$$\begin{aligned} A &= l \times w \\ &= 8 \times 3 \\ &= 24 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} SA &= 2 \times 56 + 2 \times 21 + 2 \times 24 \\ &= 112 + 42 + 48 \\ &= 202 \text{ cm}^2 \end{aligned}$$



$$\begin{aligned} A &= \pi r^2 \\ &= 3.14 \times 3^2 \\ &= 3.14 \times 9 \\ &= 28.26 \end{aligned}$$



$$\begin{aligned} A &= l \times w \\ &= 18.84 \times 6 \\ &= 113.04 \end{aligned}$$

$$\begin{aligned} SA &= 2 \times 28.26 + 113.04 \\ &= 56.52 + 113.04 \\ &= 169.56 \text{ cm}^2 \end{aligned}$$

The cylindrical tube uses less material

16. Curved SA = 660 cm^2
 Height 10cm

$$a) A = l \times w$$

$$= \text{Cir} \times h$$

$$660 = \text{Cir} \times 10$$

$$66 = \text{Cir}$$

$$b) \text{Cir} = \pi d$$

$$66 = 3.14 \times d$$

$$\frac{66}{3.14} = d$$

$$21.02 = d$$

$$\text{radius} = \frac{21.02}{2}$$

$$= 10.51 \text{ cm}$$

$$c) A_0 = \pi r^2$$

$$= 3.14 \times 10.51^2$$

$$= 3.14 \times 110.4601$$

$$= 346.84$$

$$d) \text{SA} = 2 \text{ Circular Bases} + \text{Curved Face}$$

$$= 2 \times 346.84 + 660$$

$$= 693.68 + 660$$

$$= 1353.68 \text{ cm}^2$$

Volume of a Cylinder

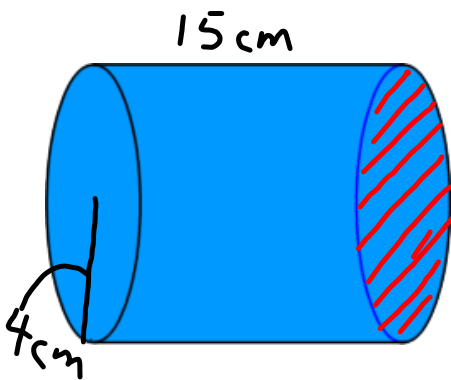
We use the same formula to find the volume of a cylinder.

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

What is the base of a cylinder? _____

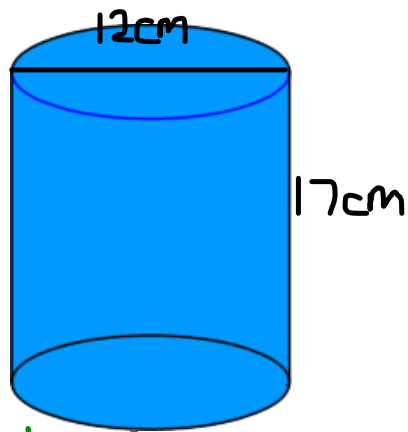
$$\star \text{ Area of Circle} = \pi r^2 \star$$

Examples:



$$\begin{aligned}
 V &= A_{\text{base}} \times H \\
 &= \pi r^2 \times H \\
 &= (3.14)(4\text{ cm})^2 \times H \\
 &= (3.14)(16\text{ cm}^2) \times 15\text{ cm} \\
 &= 816\text{ cm}^3
 \end{aligned}$$

Ex 2)

Your Turn

$$d = 12$$
$$r = 6$$

$$\begin{aligned} V &= A_{\text{base}} \times H \\ &= \pi r^2 \times H \\ &= (3.14)(6\text{cm})^2 \times 17\text{cm} \\ &= (3.14) 36\text{cm}^2 \times 17\text{cm} \\ &= 1921.68\text{cm}^3 \end{aligned}$$

Class/Homework

Worksheet



Test Thursday, May 26

$$\begin{aligned} V &= A_{\text{base}} \times H \\ &= \pi r^2 \times H \end{aligned}$$

$$S.A. = 2\pi r^2 + 2\pi r h$$

Attachments

Volumes of Cylinders.pdf