

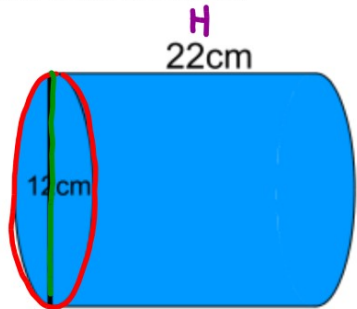


Warm Up Grade 8

Apr. 9



Find the Surface area

Given

$$r = \frac{d}{2} = 6\text{cm}$$

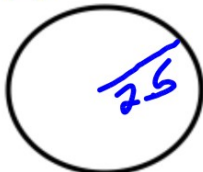
$$\begin{aligned}
 SA_{\text{cy}} &= 2\pi r^2 + 2\pi r H \\
 &= 2(3.14)(6\text{cm})^2 + 2(3.14)(6\text{cm})(22\text{cm}) \\
 &= 2(3.14)36\text{cm}^2 + 2(3.14)(6\text{cm})(22\text{cm}) \\
 &= 226.08\text{cm}^2 + 828.96\text{cm}^2 \\
 &= 1055.04\text{cm}^2
 \end{aligned}$$

$$SA_{\text{cyl}} = 2 \text{ circles} + \text{Rect}$$
$$\underbrace{2\pi r^2}_{\text{Top/Bottom}} + \underbrace{2\pi r H}_{\text{label}}$$

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

Area of Bottom

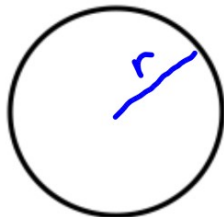


$$\begin{aligned} A_{\text{bottom}} &= \pi r^2 \\ &= 3.14 \times 2.5^2 \\ &= 3.14 \times 6.25 \\ &= 19.625 \end{aligned}$$

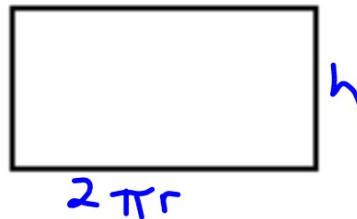
$$\begin{aligned} SA &= \text{Bottom} + \text{Label} \\ &= 19.625 + 110 \\ &= 129.625 \text{ cm}^2 \end{aligned}$$

2. $SA = 2 \times A_{\text{circle}} + \text{Area of Rect}$

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



$$A = \pi r^2$$



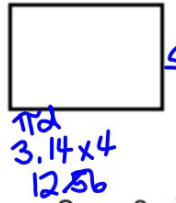
3. The SA of a cylinder is always approx because of π . (We round to 3.14)

$$4. A_0 = \pi r^2$$

$$= 3.14 \times 2^2$$

$$= 3.14 \times 4$$

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



$$A = l \times w$$

$$= 12.56 \times 5$$

$$= 62.8 \text{ cm}^2$$

$$S_{a_{\text{cyl}}} = 2\pi r^2 + 2\pi rH$$

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

$$\text{OR } = 2(3.14)(2\text{cm})^2 + 2(3.14)(2\text{cm})(5\text{cm})$$

$$= 2(3.14)(4\text{cm}^2) + 2(3.14)(2\text{cm})(5\text{cm})$$

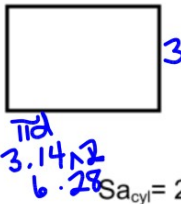
$$= 25.12 \text{ cm}^2 + 62.8 \text{ cm}^2$$

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

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

$$= 3.14 \times 1^2$$

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



$$A = l \times w$$

$$= 6.28 \times 3$$

$$= 18.84 \text{ cm}^2$$

$$S_{a_{\text{cyl}}} = 2\pi r^2 + 2\pi rH$$

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

$$\text{Or } = 2(3.14)(1\text{cm})^2 + 2(3.14)(1\text{cm})(3\text{cm})$$

$$= 2(3.14)(1\text{cm}^2) + 2(3.14)(1\text{cm})(3\text{cm})$$

$$= 6.28 \text{ cm}^2 + 18.84 \text{ cm}^2$$

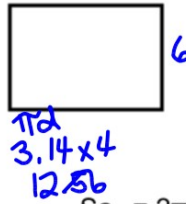
$$= 25.12 \text{ cm}^2$$

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

$$= 3.14 \times 2^2$$

$$= 3.14 \times 4$$

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



$$A = l \times w$$

$$= 12.56 \times 6$$

$$= 75.36 \text{ cm}^2$$

$$S_{a_{\text{cyl}}} = 2\pi r^2 + 2\pi rH$$

$$SA = 2 \times 12.56 + 75.36 = 25.12 + 75.36 = 100.48 \text{ cm}^2$$

$$= 2(3.14)(2\text{cm})^2 + 2(3.14)(2\text{cm})(6\text{cm})$$

$$= 2(3.14)(4\text{cm}^2) + 2(3.14)(2\text{cm})(6\text{cm})$$

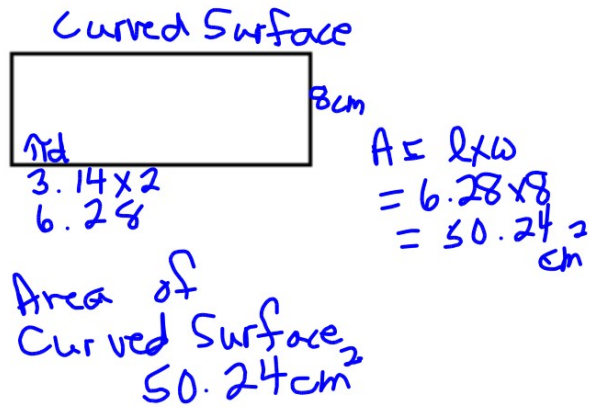
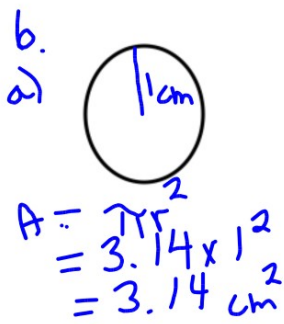
$$= 25.12 \text{ cm}^2 + 75.36 \text{ cm}^2$$

$$= 100.48 \text{ cm}^2$$

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



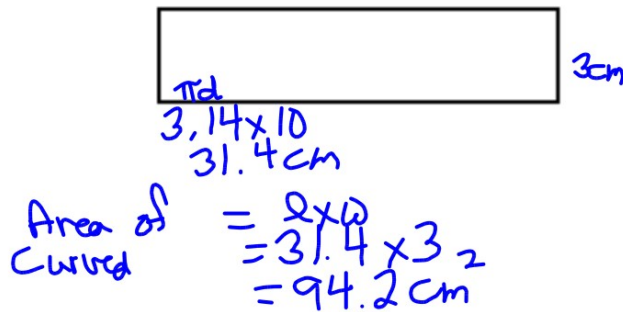
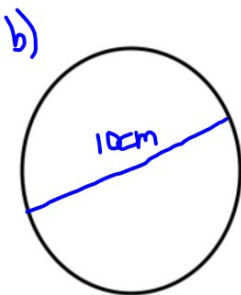
$$S_{a_{cyl}} = 2\pi r^2 + 2\pi rH$$

$$= 2(3.14)(1\text{cm})^2 + 2(3.14)(1\text{cm})(8\text{cm})$$

$$= 2(3.14)(1\text{cm}^2) + 2(3.14)(1\text{cm})(8\text{cm})$$

$$= 6.28 \text{ cm}^2 + 50.24 \text{ cm}^2$$

$$= 56.52 \text{ cm}^2$$



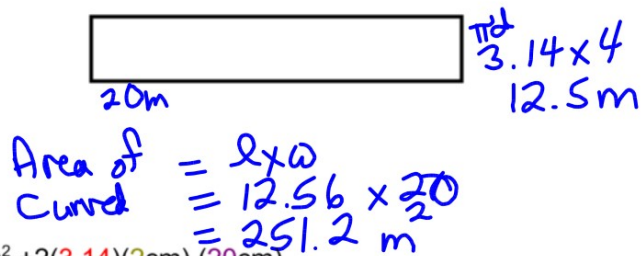
$$S_{a_{cyl}} = 2\pi r^2 + 2\pi rH$$

$$= 2(3.14)(5\text{cm})^2 + 2(3.14)(5\text{cm})(3\text{cm})$$

$$= 2(3.14)(25\text{cm}^2) + 2(3.14)(5\text{cm})(3\text{cm})$$

$$= 157 \text{ cm}^2 + 94.2 \text{ cm}^2$$

$$= 251.2 \text{ cm}^2$$



$$S_{a_{cyl}} = 2\pi r^2 + 2\pi rH$$

$$= 2(3.14)(2\text{cm})^2 + 2(3.14)(2\text{cm})(20\text{cm})$$

$$= 2(3.14)(4\text{cm}^2) + 2(3.14)(2\text{cm})(20\text{cm})$$

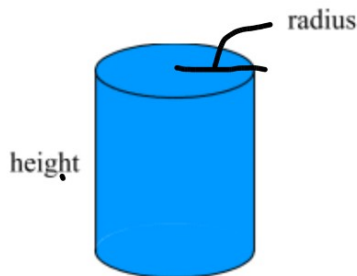
$$= 25.12 \text{ cm}^2 + 251.2 \text{ cm}^2$$

$$= 276.32 \text{ cm}^2$$

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 _____

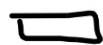
If you unroll the curved face of the cylinder, you will get a _____

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 $A = b \times h$



= circumference x h

Step 4) Find the Total SA = 2Circles + Rectangle

$$2(\pi r^2) + 2\pi r H$$

Steps to Find Surface Area of Cylinders

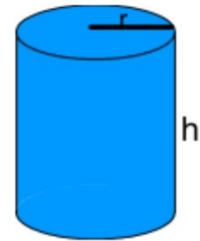
Step 1) Area of circle = πr^2

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

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

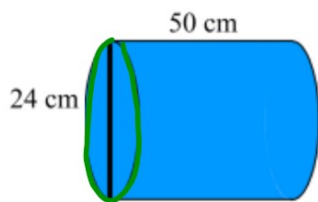
$$= (2\pi r) \times h$$

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



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

Find the surface area



$d = 24\text{ cm}$
 $r = 12\text{ cm}$
 $H = 50\text{ cm}$

Your Turn

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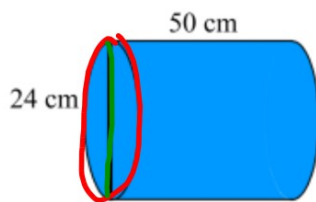
4, 6, # 8, #9, #10, #11, #12, #15, #16

Answer pg 513

Answer
← 4672.32 cm²

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

Find the surface area

Given

$$d = 24 \text{ cm}$$

$$\downarrow$$

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

$$H = 50 \text{ cm}$$

SA_{cy} -

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

$$= 2(3.14)(12 \text{ cm})^2 + 2(3.14)(12 \text{ cm})(50 \text{ cm})$$

$$= 2(3.14) \underbrace{144 \text{ cm}^2} + 2(3.14)(12 \text{ cm})(50 \text{ cm})$$

$$904.32 \text{ cm}^2 + 3768 \text{ cm}^2$$

$$4672.32 \text{ cm}^2$$

← Answer

Your Turn

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Answers Pg 513

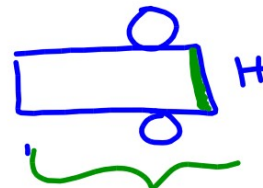
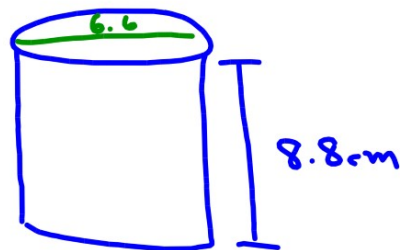
8, #9, #10, #11, #12, #15, #16

Class/Homework

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6, #8, #9, #10, #11, #12, #15, #16

12)



$$2\pi r$$

$$2(3.14)(3.3\text{cm})$$

$$20.724$$

+ 1 cm overlap

$$21.724$$

$$5.8$$

$$21.724$$

$$A_{\text{rec}} = 191.170\text{m}^2$$