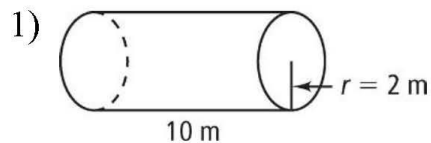


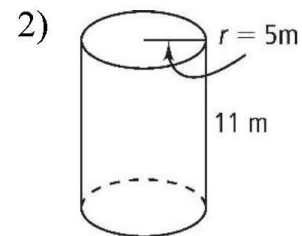
Name _____ Date _____

11.3 – Surface Area of Cylinders & Cones

Find **ONLY** THE LATERAL AREA of each cylinder to the nearest 0.1.

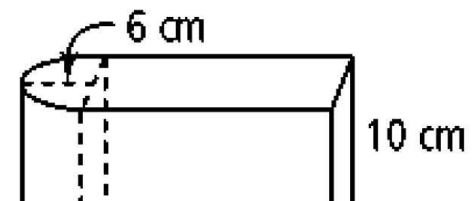


$$\begin{aligned} L.A. &= \pi d h \\ &= 3.14 \times 4 \times 10 \\ &\approx 125.6\text{ m}^2 \end{aligned}$$



$$\begin{aligned} L.A. &= \pi d h \\ &= 3.14 \times 10 \times 11 \\ &\approx 345.4\text{ m}^2 \end{aligned}$$

3) what is the surface area of the solid shown at the right?



- 3) ~~W~~ What is the surface area of the solid shown at the right?

$$A = 15 \times 10 = 150 \times 2 = 300$$

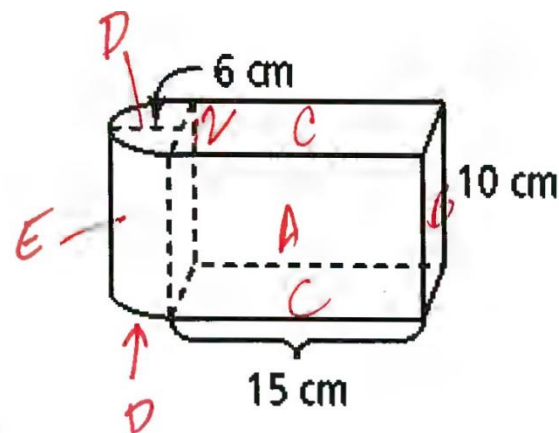
$$B = 12 \times 10 = 120$$

$$C = 15 \times 12 = 180 \times 2 = 360$$

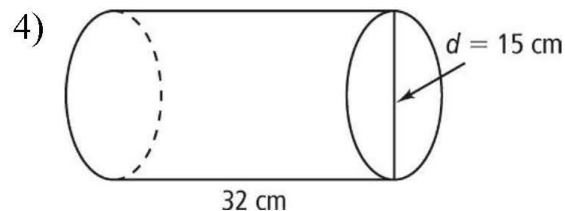
$$D = \frac{1}{2} \pi r^2 = \frac{1}{2} \cdot 3.14 \times 36 = 56.52 \times 2 = 113.04$$

$$E = \frac{1}{2} \pi dH = \frac{1}{2} \times 3.14 \times 12 \times 10 = 188.4$$

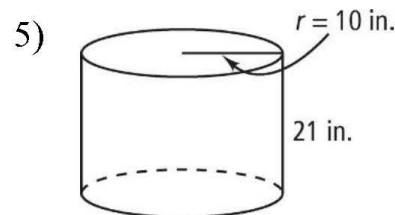
$$\underline{1081.44 \text{ cm}^2}$$



Find the surface area of each cylinder in terms of π .



$$\begin{aligned} S.A. &= 2\pi r^2 + \pi dH \\ &= 2 \times \pi \times 7.5^2 + \pi \times 15 \times 32 \\ &= 112.5\pi + 480\pi \\ &= 592.5\pi \text{ cm}^2 \end{aligned}$$



$$\begin{aligned} S.A. &= 2\pi r^2 + \pi dH \\ &= 2\pi \cdot 10^2 + \pi \times 20 \times 21 \\ &= 200\pi + 420\pi \\ &= 620\pi \text{ in}^2 \end{aligned}$$

- 6) a) A cylindrical container of paint with radius 6 in. is 15 in. tall. If all of the surfaces except the top are made of metal, how much metal is used to make the container? Assume the thickness of the metal is negligible. Show your answer to the nearest square inch.

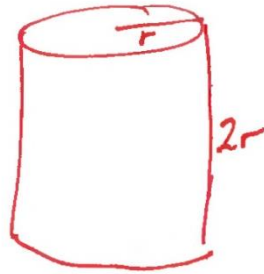
$$\begin{aligned} S.A. &= \pi r^2 + \pi dH \\ &= 3.14 \times 6^2 + 3.14 \times 12 \times 15 \\ &= 113.04 + 565.2 \\ &= 678.24 \approx 678 \text{ in}^2 \end{aligned}$$

- b) If the top of the paint container is made of plastic, how much plastic is used to make the top? Assume the thickness of the plastic is negligible. Show your answer to the nearest square inch.

$$\begin{aligned} A &= \pi r^2 \\ &= 3.14 \times 6^2 \\ &= 3.14 \times 36 \\ &= 113.04 \approx 113 \text{ in}^2 \end{aligned}$$

- 7) a) Suppose that a cylinder has a radius of r units and a height of $2r$ units. The lateral area of the cylinder is 64π square units. What is the value of r ?

7) a) Suppose that a cylinder has a radius of r units and a height of $2r$ units. The lateral area of the cylinder is 64π square units. What is the value of r ?



$$L.A. = \pi dH$$

$$64\pi = \pi \times 2r \times 2r$$

$$64\pi = 4r^2\pi$$

$$16 = r^2$$

$$4 = r$$

b) What is the surface area of the cylinder? Round your answer to the nearest 0.1.

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

$$= 2(\pi \times 4^2) + 64\pi$$

$$= 32\pi + 64\pi$$

$$= 96\pi \approx 96 \times 3.14 \approx 301.4 \text{ u}^2$$

8) Draw a cylinder and its dimensions with a surface area of $136\pi \text{ cm}^2$.

Possible Answer:

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

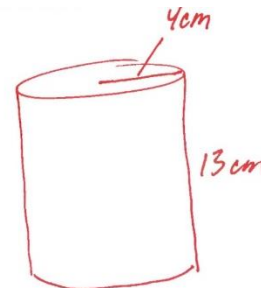
$$136\pi = 2\pi r^2 + 2\pi rH$$

$$136\pi = 2\pi r(r+H)$$

$$136\pi = 8\pi(4+H)$$

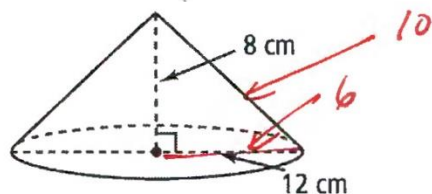
$$17 = 4+H$$

$$13 = H$$



Find the surface area of each cone in terms of π .

9)



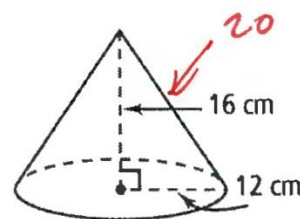
$$SA = \pi r l + \pi r^2$$

$$= \pi \times 6 \times 10 + \pi \times 6^2$$

$$= 60\pi + 36\pi$$

$$= 96\pi \text{ cm}^2$$

10)



$$SA = \pi r l + \pi r^2$$

$$= \pi \times 12 \times 20 + \pi \times 12^2$$

$$= 240\pi + 144\pi$$

$$= 384\pi \text{ cm}^2$$