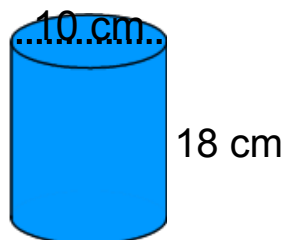


Warm Up Grade 8

May 25, 2016



Find the Surface Area and Volume



$$\begin{aligned}
 S.A_{cyl} &= 2\pi r^2 + 2\pi r H \\
 &= 2(3.14)(5\text{cm})^2 + 2(3.14)(5\text{cm})(18\text{cm}) \\
 &= 2 \times 3.14 \times (25\text{cm}^2) + 2 \times 3.14 \times 5\text{cm} \times 18\text{cm} \\
 &= 157\text{cm}^2 + 565.2\text{cm}^2 \\
 &= 722.2\text{cm}^2
 \end{aligned}$$

$$\begin{aligned}
 V &= A_{\text{base}} \times H \\
 &= \pi r^2 \times H \\
 &= (3.14)(5\text{cm})^2 \times 18\text{cm} \\
 &= 3.14 \times 25\text{cm}^2 \times 18\text{cm} \\
 &= 1413\text{cm}^3
 \end{aligned}$$

$$\begin{aligned}
 1) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(3 \text{ cm})^2 \\
 &= (3.14)(9 \text{ cm}^2) \\
 &= 28.26 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 28.26 \text{ cm}^2 \times 8 \text{ cm} \\
 &= 226.08 \text{ cm}^3
 \end{aligned}$$

$$\begin{aligned}
 2) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(4 \text{ in})^2 \\
 &= (3.14)(16 \text{ in}^2) \\
 &= 50.24 \text{ in}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 50.24 \text{ in}^2 \times 12 \text{ in} \\
 &= 602.88 \text{ in}^3
 \end{aligned}$$

$$\begin{aligned}
 3) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(10 \text{ mm})^2 \\
 &= (3.14)(100 \text{ mm}^2) \\
 &= 314 \text{ mm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 314 \text{ mm}^2 \times 5 \text{ mm} \\
 &= 1570 \text{ mm}^3
 \end{aligned}$$

$$\begin{aligned}
 4) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(7 \text{ in})^2 \\
 &= (3.14)(49 \text{ in}^2) \\
 &= 153.86 \text{ in}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 153.86 \text{ in}^2 \times 10 \text{ in} \\
 &= 1538.6 \text{ in}^3
 \end{aligned}$$

$$\begin{aligned}
 5) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(3.5 \text{ mm})^2 \\
 &= (3.14)(12.25 \text{ mm}^2) \\
 &= 38.465 \text{ mm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 38.465 \text{ mm}^2 \times 10 \text{ mm} \\
 &= 384.65 \text{ mm}^3
 \end{aligned}$$

$$\begin{aligned}
 6) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(6 \text{ cm})^2 \\
 &= (3.14)(36 \text{ cm}^2) \\
 &= 113.04 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 113.04 \text{ cm}^2 \times 18 \text{ cm} \\
 &= 2034.72 \text{ cm}^3
 \end{aligned}$$

$$\begin{aligned}
 7) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(4)^2 \\
 &= (3.14)(16) \\
 &= 50.24 \text{ unit}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 50.24 \text{ units}^2 \times 6 \text{ cm} \\
 &= 301.44 \text{ units}^3
 \end{aligned}$$

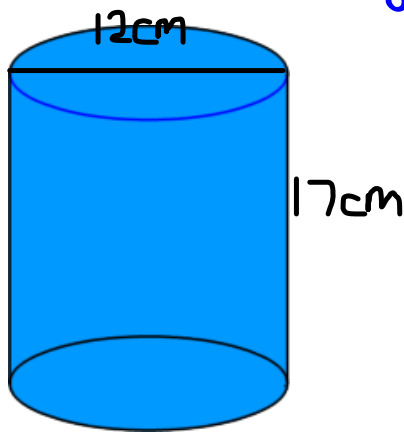
$$\begin{aligned}
 8) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(40)^2 \\
 &= (3.14)(1600) \\
 &= 5024 \text{ unit}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 5024 \text{ units}^2 \times 10 \text{ cm} \\
 &= 50240 \text{ units}^3
 \end{aligned}$$

$$\begin{aligned}
 9) \text{ Area of Circle} &= \pi r^2 \\
 &= (3.14)(14)^2 \\
 &= (3.14)(196) \\
 &= 615.44 \text{ unit}^2
 \end{aligned}$$

$$\begin{aligned}
 \text{Volume} &= A_{\text{of circle}} \times H \\
 &= 615.44 \text{ units}^2 \times 6 \text{ cm} \\
 &= 3692.64 \text{ units}^3
 \end{aligned}$$

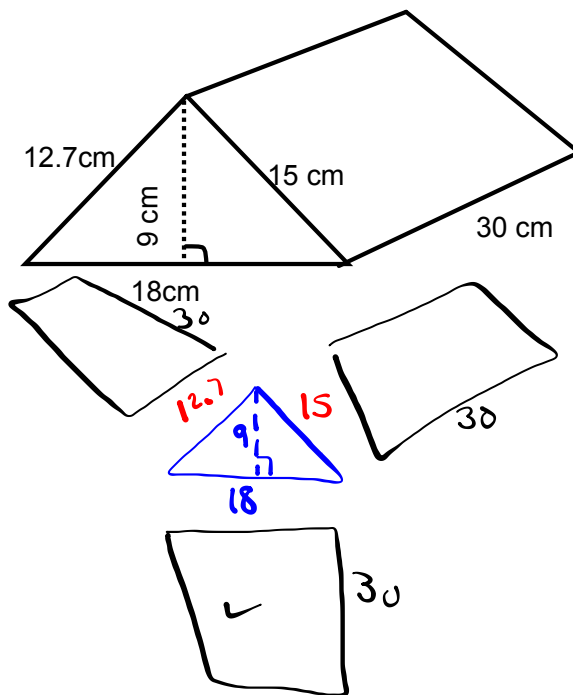
Ex 2) Find S.A and Volume

Your Turn

$$\begin{aligned}
 SA_{cy} &= 2\pi r^2 + 2\pi rH \\
 &= 2 \times 3.14 \times (6\text{cm})^2 + 2 \times 3.14 \times (6\text{cm}) \times (17\text{cm}) \\
 &= 2 \times 3.14 \times \underset{\downarrow}{36\text{cm}^2} + 2 \times 3.14 \times (6\text{cm}) \times (17) \\
 &= 226.08\text{cm}^2 + 640.56\text{cm}^2 \\
 &= 866.64\text{cm}^2
 \end{aligned}$$

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

Find the surface area and volume of the triangular prism.



$$\begin{aligned}
 A_{\Delta} &= \frac{b \times h}{2} \\
 &= \frac{9 \text{ cm} \times 18 \text{ cm}}{2} \\
 &= \frac{162 \text{ cm}^2}{2} \\
 &= 81 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 A_{\text{rec}} &= L \times w \\
 &= 18 \text{ cm} \times 30 \text{ cm} \\
 &= 540 \text{ cm}^2
 \end{aligned}$$

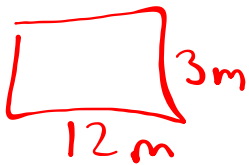
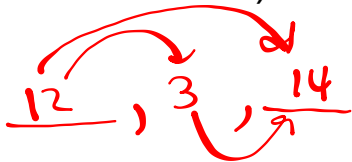
$$\begin{aligned}
 A_{\text{rec}} &= L \times w \\
 &= 12.7 \text{ cm} \times 30 \text{ cm} \\
 &= 381 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 A_{\text{rec}} &= L \times w \\
 &= 15 \text{ cm} \times 30 \text{ cm} \\
 &= 450 \text{ cm}^2
 \end{aligned}$$

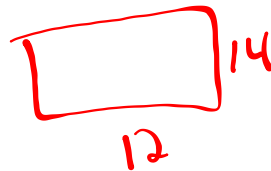
$$\begin{aligned}
 \text{Total SA} &= 2\Delta + \text{Rec} + \text{Rec} + \text{Rec} \\
 &= 2(81 \text{ cm}^2) + 381 \text{ cm}^2 + 450 \text{ cm}^2 + 540 \text{ cm}^2 \\
 &= 162 \text{ cm}^2 + 381 \text{ cm}^2 + 450 \text{ cm}^2 + 540 \text{ cm}^2 \\
 &= 1533 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 V &= A_{\text{bases}} \times H \\
 &= 81 \text{ cm}^2 \times 30 \text{ cm} \\
 &= 2430 \text{ cm}^3
 \end{aligned}$$

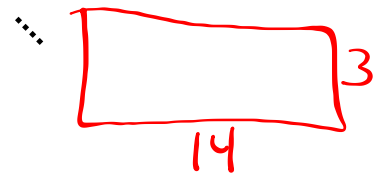
Find the surface area and volume of the rectangular prism with dimensions of 12 m x 3 m x 14 m. (Sketch faces and show all formulas and units)



$$\begin{aligned} A &= L \times w \\ &= 12 \text{ m} \times 3 \text{ m} \\ &= 36 \text{ m}^2 \end{aligned}$$

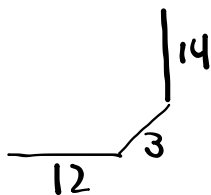


$$\begin{aligned} A &= L \times w \\ &= 12 \text{ m} \times 14 \text{ m} \\ &= 168 \text{ m}^2 \end{aligned}$$



$$\begin{aligned} A &= L \times w \\ &= 14 \text{ m} \times 3 \text{ m} \\ &= 42 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Total SA} &= 2(\text{Rec}^{\text{Top}} + \text{Rec}^{\text{Front}} + \text{Rec}^{\text{Side}}) \\ &= 2(42 \text{ m}^2 + 168 \text{ m}^2 + 36 \text{ m}^2) \\ &= 2(246 \text{ m}^2) \\ &= 492 \text{ m}^2 \end{aligned}$$



$$\begin{aligned} V &= A_{\text{base}} \times H \\ &= 36 \text{ m}^2 \times 14 \text{ m} \\ &= 504 \text{ m}^3 \end{aligned}$$

Show all work

A cube has a surface area of 486 mm^2 , find the following:

a) The surface area of one face

$$\begin{aligned} &= 486 \text{ mm}^2 \div 6 \\ &= 81 \text{ mm}^2 \end{aligned}$$

$$A = 81 \text{ mm}^2$$

b) The side length of the cube

$$\begin{aligned} &= \sqrt{\text{Area of Square}} \\ &= \sqrt{81 \text{ mm}^2} \\ &= 9 \text{ mm} \end{aligned}$$

Class/Homework

Test May 26, 2016

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#5, 6, 7a, 9(a,b), 10(a,b), 11(a, b). #12, #14(a), #15, #16

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#5 , 6, 7, 8, 9, 10