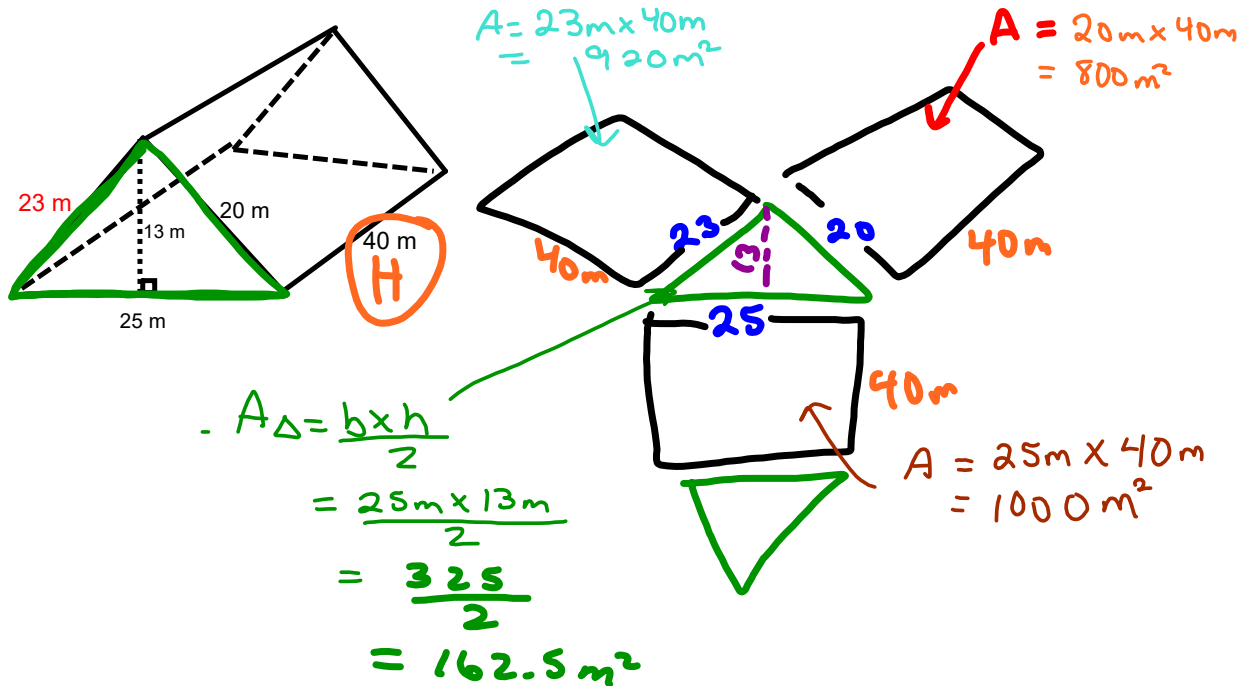




Warm Up Grade 8



Find the volume & Surface Area

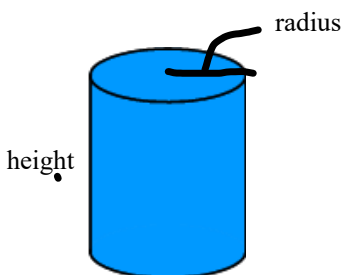


$$\begin{aligned}
 \text{Total SA} &= 2\Delta + \square + \square + \square \\
 &= 2(162.5) + 1000m^2 + 920m^2 + 800m^2 \\
 &= 325 + 1000m^2 + 920m^2 + 800m^2 \\
 &= 3045m^2
 \end{aligned}$$

$$\begin{aligned}
 V &= A_{\text{base}\Delta} \times H \\
 &= 162.5m^2 \times 40m \\
 &= 6500m^3
 \end{aligned}$$

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 Circles

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

One side of the rectangle is the height of the cylinder,
and

the other side of the rectangle is the circumference 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 $A = b \times h$

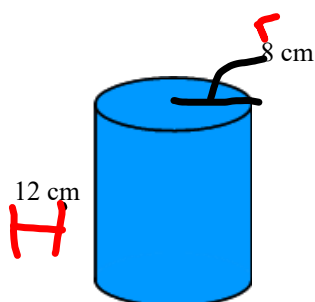
= circumference \times h

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

$$A_{\text{Circle}} = \pi r^2$$

$$H \times \begin{array}{c} \text{circumference} \\ 2\pi r \end{array}$$

$$SA_{\text{cyl}} = \underbrace{2\pi r^2}_{\text{2 circles}} + \underbrace{2\pi r h}_{A_{\square}}$$



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 \times h

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

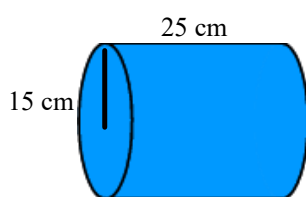
$$\begin{aligned}
 SA_{\text{cyl}} &= 2\pi r^2 + 2\pi r h \\
 &= 2(3.14)(8)^2 + 2(3.14)(8)(12) \\
 &= \underbrace{2 \times 3.14 \times 64}_{401.92} + \underbrace{2 \times 3.14 \times 8 \times 12}_{602.88} \\
 &= 401.92 + 602.88 \\
 &= 1004.8 \text{ cm}^2
 \end{aligned}$$

Find the surface area

Your Turn

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$$\begin{aligned} SA_{\text{cyl}} &= 2\pi r^2 + 2\pi r H \\ &= 2 \times 3.14 \times (15)^2 + 2 \times 3.14 \times \underline{15} \times \underline{25} \\ &= \underbrace{2 \times 3.14 \times 225}_{1413} + \underbrace{2 \times 3.14 \times \underline{15} \times \underline{25}}_{2355} \\ &= 3768 \text{ cm}^2 \end{aligned}$$

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4a) \rightarrow give $d=4$ so $r=2$

4c) \rightarrow

6b) \rightarrow

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