

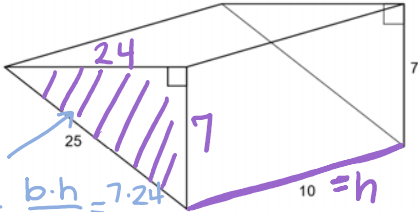
Review

Friday, April 6, 2018 7:48 PM

1-7) Find the lateral surface area and total surface area of each solid. Show work!

1. Triangular Prism

Base = Δ



$$A_{\Delta} = \frac{b \cdot h}{2} = \frac{7 \cdot 24}{2} = 84$$

$$2A_B = 2(84) = 168$$

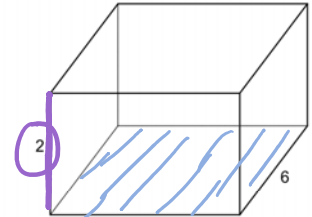
$$LSA = p \cdot h = 56 \cdot 10 = \boxed{560 u^2}$$

$$p = 24 + 7 + 25 = 56$$

$$TSA = LSA + 2A_B$$

$$560 + 168 = \boxed{728 u^2}$$

2. Rectangular Prism



Depends on the
↓ "base"

* vary *

$$LSA = p \cdot h = 28 \cdot 2 = \boxed{56 u^2}$$

$$p = 2(8) + 2(6) = 28$$

$$h = 2$$

$$TSA = LSA + 2A_B$$

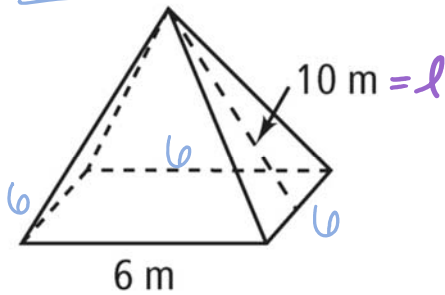
$$= 56 + 2(48)$$

$$= 56 + 96$$

$$\boxed{TSA = 152 u^2}$$

$$A_B = 6 \cdot 8 = 48$$

2. Square Pyramid



$$A_B = s^2 = 6^2 = 36$$

$$LSA = \frac{p \cdot l}{2} = \frac{24 \cdot 10}{2} = \boxed{120 m^2}$$

$$p = 6(4) = 24$$

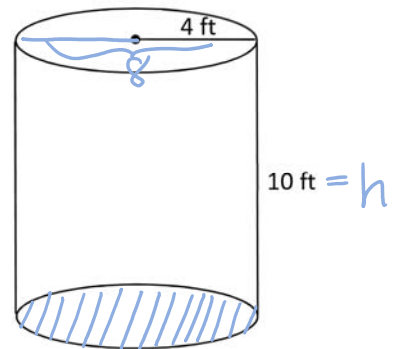
$$l = 10$$

$$TSA = LSA + A_B$$

$$120 + 36$$

$$\boxed{TSA = 156 m^2}$$

4. Cylinder



$$p = C = \pi d = 8\pi$$

$$A_B = \pi r^2 = \pi(4)^2 = 16\pi$$

$$LSA = p \cdot h = 8\pi \cdot 10 = \boxed{80\pi u^2}$$

$$TSA = LSA + 2A_B$$

$$= 80\pi + 2(16\pi)$$

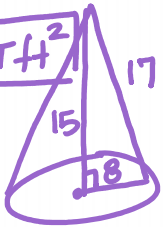
$$= 80\pi + 32\pi$$

$$\boxed{TSA = 112\pi u^2}$$

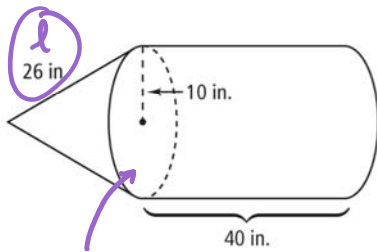
5. Sphere with a radius of 6cm

$$\begin{aligned} \text{TSA} &= 4\pi r^2 \\ &= 4\pi (6)^2 \\ &= 36 \cdot 4\pi = \boxed{144\pi \text{ u}^2} \end{aligned}$$

6. Cone with radius = 8 ft and height = 15 ft

$$\begin{aligned} \text{LSA} &= \frac{p \cdot l}{2} = \frac{16\pi (17)}{2} = \boxed{136\pi \text{ ft}^2} \\ p = C &= 2\pi r = 2\pi (8) = 16\pi \\ \text{TSA} &= \text{LSA} + A_B \\ A_B &= \pi r^2 = \pi (8)^2 = 64\pi \\ \text{TSA} &= 136\pi + 64\pi = \boxed{200\pi \text{ ft}^2} \end{aligned}$$


7.



$$\begin{aligned} p &= 2\pi r = 20\pi \\ A_B &= \pi r^2 = 100\pi \end{aligned}$$

8. Find the height of the prism with a TSA = 214 m²

$$\begin{aligned} \text{TSA} &= p \cdot h + 2A_B \\ 214 &= 20h + 48 \\ 166 &= 20h \\ \boxed{h} &= \boxed{8.3 \text{ m}} \end{aligned}$$

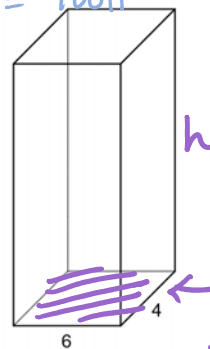
Total Surface Area =

$$\begin{aligned} \textcircled{1} \text{ SA}_{\text{cone}} &= \text{LSA (only need LSA)} \\ &= \frac{p \cdot l}{2} = \frac{20\pi \cdot 26}{2} = 260\pi \text{ in}^2 \end{aligned}$$

only one base!

$$\textcircled{2} \text{ SA}_{\text{cyl}} = \text{LSA} + A_B$$

$$\begin{aligned} \text{LSA} &= p \cdot h = 20\pi \cdot 40 = 800\pi \\ \text{SA}_{\text{cyl}} &= 800\pi + 100\pi = 900\pi \\ \textcircled{3} \text{ SA}_{\text{cone}} + \text{SA}_{\text{cyl}} &= 260\pi + 900\pi \\ &= \boxed{1160\pi \text{ in}^2} \end{aligned}$$



$$\begin{aligned} p &= 2(6) + 2(4) \\ p &= 20 \\ A_B &= 6 \cdot 4 = 24 \\ 2A_B &= 48 \end{aligned}$$

9. The lateral area of a cone is 155.25π m². The slant height is 13.5 m. What is the radius?

$$\begin{aligned} \text{LSA} &= \frac{p \cdot l}{2} \quad 2 \cdot 155.25\pi = \frac{p(13.5)}{2} \\ 310.5 &= 13.5d \end{aligned}$$

$$d = 23\text{m} \quad \boxed{r = 11.5 \text{ m}}$$

10. A box of cereal measures 8 in. wide, 11 in. high, and 2 in. deep. If all surfaces are made of cardboard and the total amount of overlapping cardboard in the box is 7 in², how much cardboard is used to make the cereal box?

$$\begin{aligned} \textcircled{1} \text{ LSA} &= p \cdot h = 38 \cdot 2 = 76 \\ p &= 2(8) + 2(11) \\ &= 16 + 22 \\ p &= 38 \\ \textcircled{2} \text{ TSA} &= \text{LSA} + 2A_B \quad A_B = 8 \cdot 11 = 88 \\ &= 76 + 2(88) \\ \text{TSA} &= 252 \text{ in}^2 \end{aligned}$$

Total cardboard = $\boxed{259 \text{ in}^2}$

← add on 7 in² →