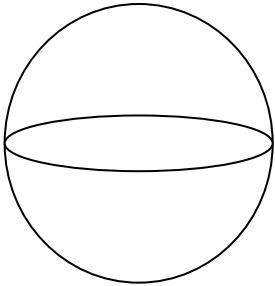


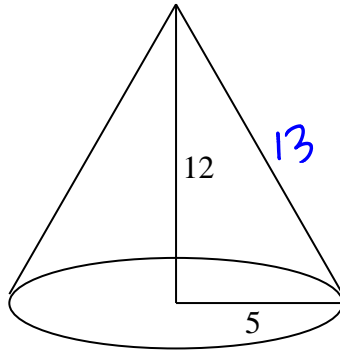
Find the total surface area for each shape for 1-3.

1. Sphere with radius = 6.



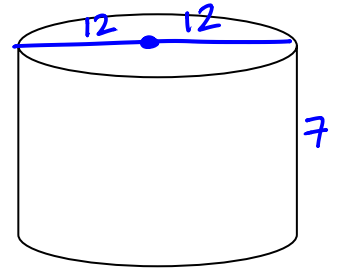
$$\begin{aligned} TSA &= 4\pi r^2 \\ &= 4\pi(6)^2 \\ &= 4\pi \cdot 36 \\ \boxed{TSA &= 144\pi u^2} \end{aligned}$$

2. Cone. Radius = 5, altitude = 12.



$$\begin{aligned} TSA &= LSA + A_{Base} \\ &= \frac{p \cdot l}{2} + \pi r^2 \\ &= \frac{10\pi \cdot 13}{2} + \pi(5)^2 \\ &= 65\pi + 25\pi \\ \boxed{TSA &= 90\pi u^2} \end{aligned}$$

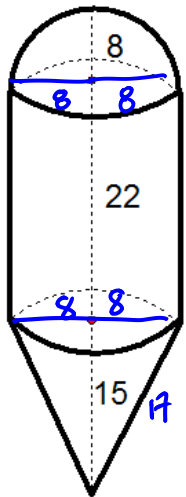
3. Cylinder. Diameter = 24
Height = 7



$$\begin{aligned} TSA &= LSA + 2 \cdot A_{Base} \\ &= p \cdot h + 2(\pi r^2) \\ &= 24\pi \cdot 7 + 2(\pi \cdot 12^2) \\ &= 168\pi + 2(144\pi) \\ &= 168\pi + 288\pi \\ \boxed{TSA &= 456\pi u^2} \end{aligned}$$

For 4 & 5, find the total surface area of the combined shapes. (Hint: Do not include any faces that would be inside the shape.)

4. Hemisphere on cylinder on cone



$$\begin{aligned} LSA_{Hemisphere} &= 2\pi r^2 \\ &= 2\pi(8)^2 \\ &= 2\pi \cdot 64 \\ &= 128\pi \end{aligned}$$

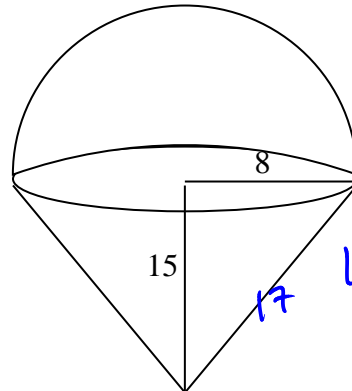
$$\begin{aligned} LSA_{cyl} &= p \cdot h \\ &= 16\pi \cdot 22 \\ &= 352\pi \end{aligned}$$

$$\begin{aligned} LSA_{cone} &= \frac{p \cdot l}{2} \\ &= \frac{16\pi \cdot 17}{2} \\ &= 136\pi \end{aligned}$$

$$TSA = 128\pi + 352\pi + 136\pi$$

$$\boxed{TSA = 616\pi u^2}$$

5. Hemisphere on top of cone.



$$\begin{aligned} LSA_{Hs} &= 2\pi r^2 \\ &= 2\pi(8)^2 \\ &= 128\pi \end{aligned}$$

$$\begin{aligned} LSA_{cone} &= \frac{p \cdot l}{2} \\ &= \frac{16\pi \cdot 17}{2} \\ &= 136\pi \end{aligned}$$

$$TSA = 128\pi + 136\pi$$

$$\boxed{TSA = 264\pi u^2}$$