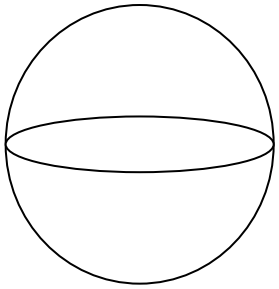
Day 12 Homework

Surface Area of Circular Solids

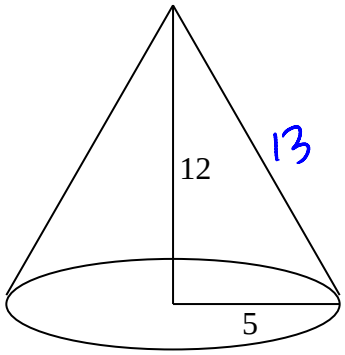
Find the total surface area for each shape for 1-3.

1. Sphere with radius = 6.



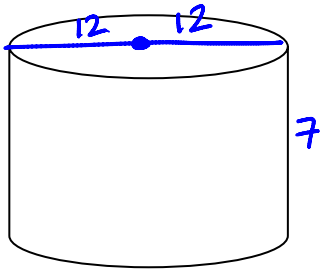
$TSA = 4\pi r^2$
$= 4\pi(6)^2$
$= 4\pi \cdot 36$
$\boxed{TSA = 144\pi\ u^2}$

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



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

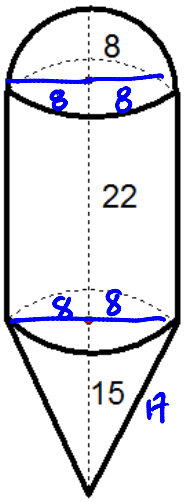
3. Cylinder. Diameter = 24
Height = 7



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

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



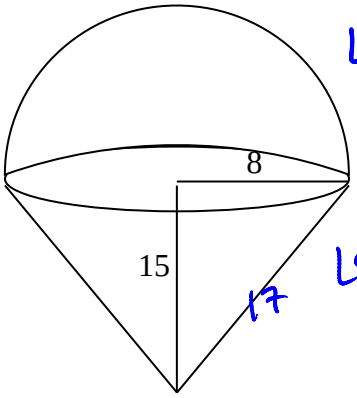
$LSA_{Hemisphere} = 2\pi r^2$
$= 2\pi(8)^2$
$= 2\pi \cdot 64$
$= 128\pi$

$LSA_{cyl} = p \cdot h$
$= 16\pi \cdot 22$
$= 352\pi$

$LSA_{cone} = \frac{p \cdot \ell}{2}$
$= \frac{16\pi \cdot 17}{2}$
$= 136\pi$

$TSA = 128\pi + 352\pi + 136\pi$
$\boxed{TSA = 616\pi\ u^2}$

5. Hemisphere on top of cone.



$LSA_{Hs} = 2\pi r^2$
$= 2\pi(8)^2$
$= 128\pi$

$LSA_{cone} = \frac{p \cdot \ell}{2}$
$= \frac{16\pi \cdot 17}{2}$
$= 136\pi$

$TSA = 128\pi + 136\pi$
$\boxed{TSA = 264\pi\ u^2}$