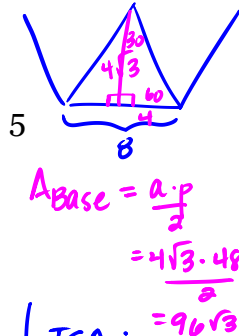
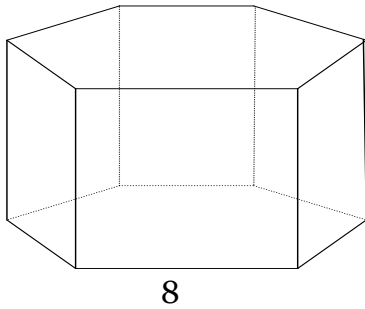


Find the lateral surface area and total surface area of each solid. Show work!

1. Right regular hexagonal prism.



LSA :

option #1

• $A_{\square \text{Face}} = 8 \cdot 5 = 40 u^2$
 x 6 \square 's
 $240 u^2$

option #2

• $LSA = p \cdot h = (8 \cdot 6) \cdot 5 = 240 u^2$

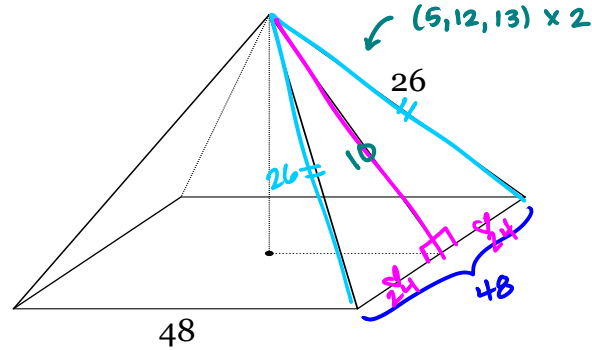
TSA :

$TSA = LSA + 2 \cdot A_{\text{Base}}$
 $= 240 + 2(96\sqrt{3})$

$TSA = (240 + 192\sqrt{3}) u^2$

2. Square pyramid

Base edge = 48 and lateral edge = 26.



LSA :

option #1

• $A_{\Delta \text{Face}} = \frac{48 \cdot 10}{2} = 240 u^2$
 x 4 Δ 's
 $960 u^2$

option #2

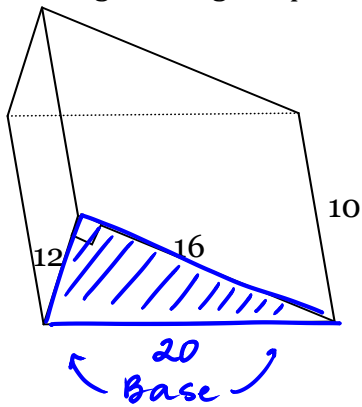
• $LSA = p \cdot l = \frac{48 \cdot 4 \cdot 10}{2} = 960 u^2$

$TSA = LSA + A_{\text{Base}}$

$= 960 + 48 \cdot 48$
 $= 960 + 2304$

$TSA = 3,264 u^2$

3. Right triangular prism.



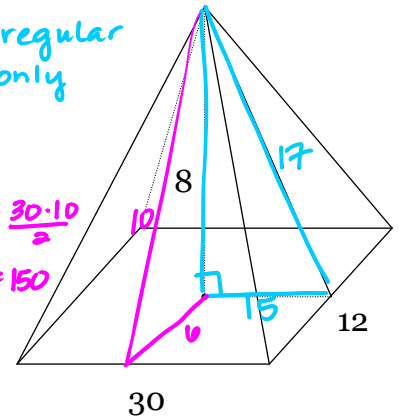
$A_{\text{Base}} = \frac{b \cdot h}{2} = \frac{12 \cdot 16}{2} = 96$

LSA :

$A_{\Delta \text{Face} 1} = \frac{12 \cdot 17}{2} = 102$
 $A_{\Delta \text{Face} 2} = \frac{30 \cdot 10}{2} = 150$

$LSA = 2(102) + 2(150) = 204 + 300$

$LSA = 504 u^2$



LSA :

option 1

$A_{\square 1} = 16 \cdot 10 = 160$
 $A_{\square 2} = 12 \cdot 10 = 120$
 $A_{\square 3} = 20 \cdot 10 = 200$
 $LSA = 480 u^2$

option 2

$LSA = p \cdot h = (12 + 16 + 20) \cdot 10 = (48)10 = 480 u^2$

$TSA = LSA + 2 \cdot A_{\text{Base}}$

$= 480 + 2(96)$
 $= 480 + 192$

$TSA = 672 u^2$

so $TSA = LSA + A_{\text{Base}}$

$= 504 + 360$

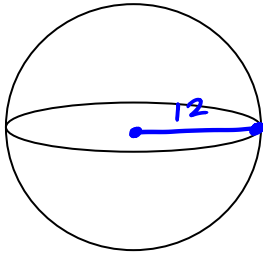
$TSA = 864 u^2$

5. What is the difference between a prism and a pyramid?

A prism is a 3-D solid that has 2 \cong , \parallel bases with rectangular faces.

A pyramid is a 3-D solid that has 1 base with triangular faces.

6. Sphere with radius = 12.

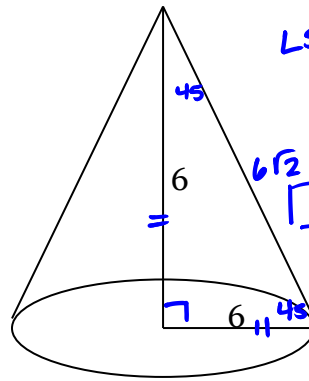


$$TSA = 4\pi r^2$$

$$= 4\pi(12)^2$$

$$TSA = 576\pi u^2$$

7. Cone. Radius = 6, altitude = 6



$$LSA = \frac{p \cdot l}{2}$$

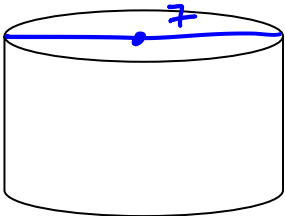
$$= \frac{12\pi \cdot 6\sqrt{2}}{2}$$

$$LSA = 36\sqrt{2}\pi u^2$$

$$TSA = LSA + A_{Base}$$

$$TSA = (36\sqrt{2}\pi + 36\pi)u^2$$

8. Cylinder. Diameter = 14, height = 5.



$$LSA = p \cdot h$$

$$= 14\pi \cdot 5$$

$$LSA = 70\pi u^2$$

$$TSA = LSA + 2 \cdot A_{Base}$$

$$= 70\pi + 2(49\pi)$$

$$= 70\pi + 98\pi$$

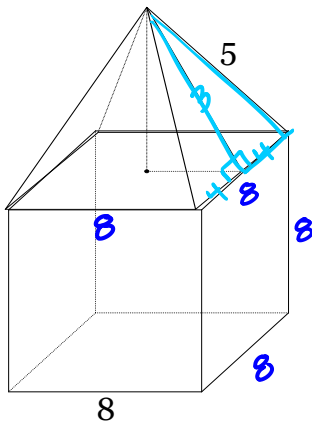
$$TSA = 168\pi u^2$$

9. Complete the analogy:

Cylinder is to prism as cone is to pyramid.

10. Find the total surface area of the combined shapes. (Hint: Do not include any faces that would be inside the shape.)

a) Square pyramid on top of cube



① $A_{Base} = 64$

$$TSA = 64 + 48 + 256$$

$$TSA = 368 u^2$$

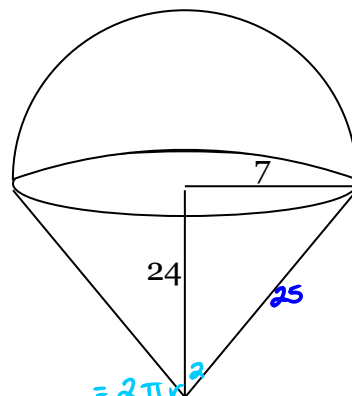
② $LSA_{pyramid} = \frac{p \cdot l}{2}$ or $A_{\Delta} = \frac{8 \cdot 3}{2} \times 4 \Delta$'s

$$= \frac{32 \cdot 3}{2} = 48$$

③ $LSA_{prism} = p \cdot h$ or $A_{\square} = 8 \cdot 8 \times 4 \square$'s

$$= 32 \cdot 8 = 256$$

b) Hemisphere on top of cone.



$$LSA_{Hemisphere} = 2\pi r^2$$

$$= 2\pi(7)^2$$

$$= 2\pi \cdot 49$$

$$= 98\pi$$

$$LSA_{cone} = \frac{p \cdot l}{2}$$

$$= \frac{14\pi \cdot 25}{2}$$

$$= 175\pi$$

$$TSA = 98\pi + 175\pi$$

$$TSA = 273\pi u^2$$