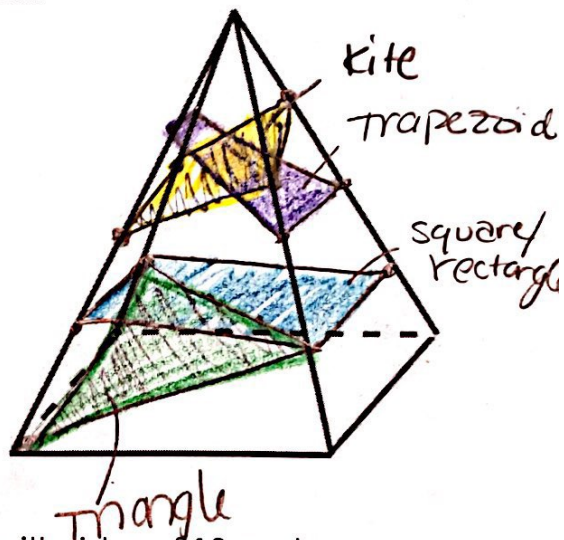


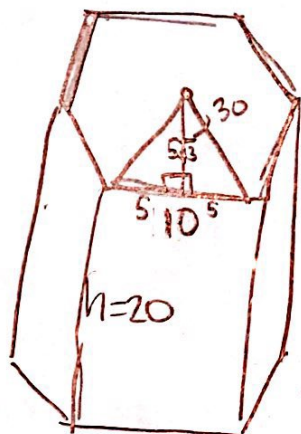
how work for all problems writing the answers in the blanks on the right. Be careful to use units and notation correctly. You may use colored pencils.

1. Find draw the slices in the square pyramid to make the following cross-sections, if possible.

- a. Square - parallel to base
- b. Triangle - vertex of base to 2 sides
- c. Rectangle - same as square
- d. Trapezoid - slanted slice
- e. Kite - from a side cut on a slant
- f. Circle - None



2. Find the surface area of a regular right hexagonal prism with sides of 10 and a height of 20.



$$\frac{300}{5} = 60$$

$$S.A = Ph + 2B$$

$$60 \cdot 20 + 2(150\sqrt{3})$$

$$S.A. = 1200 + 300\sqrt{3} \text{ u}^2$$

$$p = 60$$

$$h = 20$$

$$B = \frac{1}{2} p \cdot s = \frac{1}{2} (5\sqrt{3})(60)$$

$$150\sqrt{3}$$

3. Find the surface area of a frustum with radii of 12" and 36" and a height of 60". Round the nearest square unit.

$$S.A = LA + B_1 + B_2$$

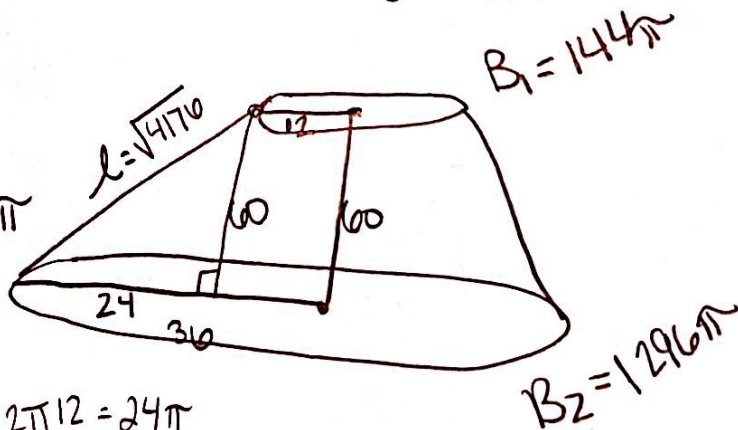
(trap)

$$\frac{1}{2}(24\pi + 72\pi)(\sqrt{4176}) + 144\pi + 1296\pi$$

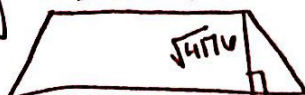
$$48\pi \cdot \sqrt{4176} + 1440\pi$$

$$\approx 14268.65$$

$$\approx \boxed{14269 \text{ in}^2}$$



$$2\pi(12) = 24\pi$$



$$2\pi(36) = 72\pi$$

4. Find the surface area of a cylinder with a radius of 20 cm and 50 cm tall that has a 5 cm x 5 cm square prism that runs all the way through the cylinder.

Prism
 $p = 20$
 $h = 50$
 $B = 25$



Cylinder
 $h = 50$
 $r = 20$
 $B = 400\pi$

$$S.A_{\text{composite}} = L.A_{\text{cylinder}} + L.A_{\text{prism}} + 2(B_{\text{cyl}} - B_{\text{prism}})$$

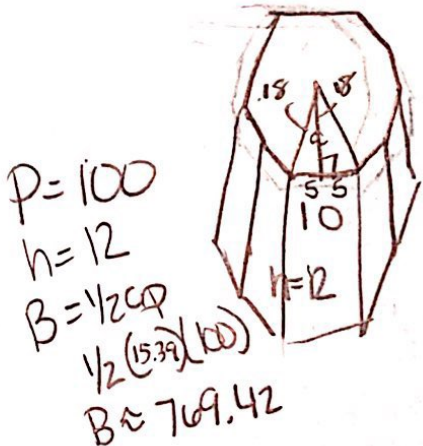
$$2\pi r h + p \cdot h + 2(400\pi - 25)$$

$$2\pi \cdot 20 \cdot 50 + 20 \cdot 50 + 800\pi - 50$$

$$2000\pi + 7000 + 800\pi - 50$$

$$2800\pi + 950 \text{ cm}^2$$

5. Find the surface area of regular right prism with a decagon base of sides 10 lollipops and a height of 12 lollipops. Round the nearest square unit.



$p = 100$
 $h = 12$
 $B = \frac{1}{2} p a$
 $\frac{1}{2} (15.39)(100)$
 $B \approx 769.42$

$$\frac{360}{10} = 36$$

$$\tan 18^\circ = \frac{5}{a}$$

$$a = \frac{5}{\tan 18^\circ}$$

$$a \approx 15.39$$

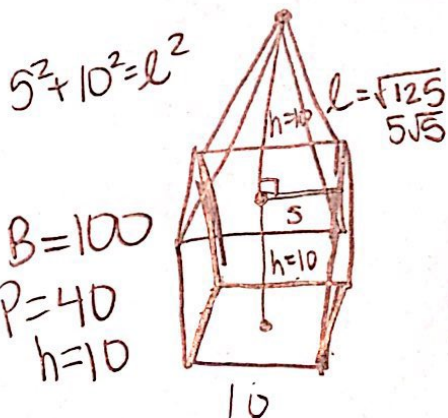
$$S.A = p \cdot h + 2B$$

$$= 100 \cdot 12 + 2(769.42)$$

$$S.A \approx 2738.84$$

$$S.A. \approx 2,739 \text{ lollipops}^2$$

6. Find the surface area of a right square prism with a right square pyramid on top of it if the sides of the bases and the heights are all 10 dowerhangershims.



$5^2 + 10^2 = l^2$
 $l = \frac{\sqrt{125}}{5\sqrt{5}}$
 $B = 100$
 $p = 40$
 $h = 10$

$$S.A_{\text{composite}} = L.A_{\text{pyramid}} + L.A_{\text{prism}} + B$$

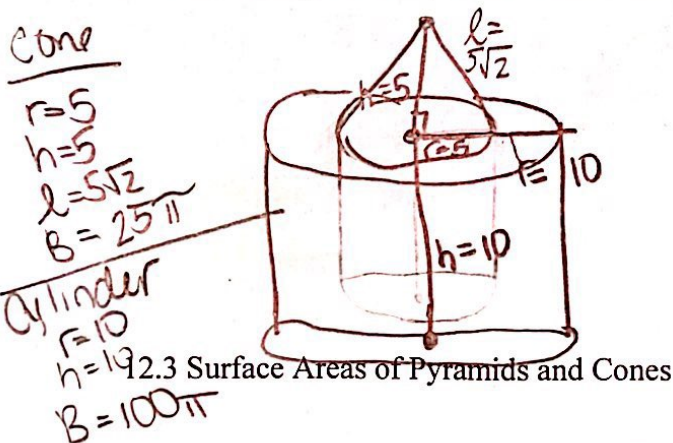
$$\frac{1}{2} p \cdot l + p \cdot h + B$$

$$\frac{1}{2} (40) \left(\frac{\sqrt{125}}{5\sqrt{5}} \right) + 40 \cdot 10 + 100$$

$$100\sqrt{5} + 400 + 100$$

$$100\sqrt{5} + 500 \text{ dowerhangershims}$$

7. Find the surface area of a cone with a height and radius of 5 chimeedwacks that sits on top of a cylinder that has a height and radius of 10 chimeedwacks.



Cone
 $r = 5$
 $h = 5$
 $l = 5\sqrt{2}$
 $B = 25\pi$
 Cylinder
 $r = 10$
 $h = 10$
 $B = 100\pi$

$$S.A_{\text{composite}} = L.A_{\text{cone}} + S.A_{\text{cylinder}} - B_{\text{cone}}$$

$$\pi r l + 2\pi r h + 2B_{\text{cylinder}} - B_{\text{cone}}$$

$$\pi(5)(5\sqrt{2}) + 2\pi(10)(10) + 2(100\pi) - 25\pi$$

$$25\sqrt{2}\pi + 200\pi + 200\pi - 25\pi$$

$$25\sqrt{2}\pi + 325\pi \text{ chimeedwacks}^2$$

$$\approx 1132.09 \text{ chimeedwacks}^2$$