I. **Vocabulary**

1.) **Polyhedron** : A 3D shape with flat "faces" and straight "edges".

2.) **Net** A 2D blueprint for a 3D figure.

3.) **Face** A "side" of a 3D Figure. (2D)

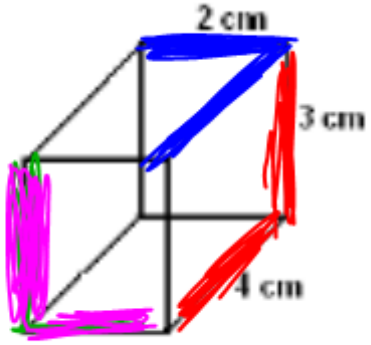
4.) **Edge** Where faces intersect.

5.) **Vertex** Where edges interseet.

6.) **Surface Area** The combined area of all faces.

II. Surface Area Calculations

[EX 1] **Rectangular Prism**



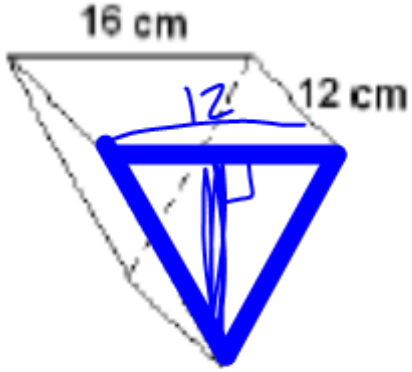
T/B: $2[2(4)] = 16$

L/R: $2[3(4)] = 24$

F/B: $2[3(2)] = 12$

$52\ cm^2$

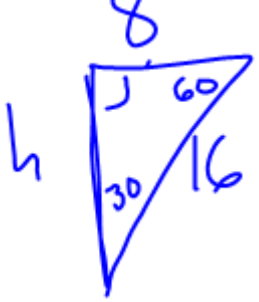
[EX 2] **Equilateral Triangle and Rectangles**



$$\square : 3\left[12(16)\right] = 576$$

$$+ \quad \triangledown : 2\left[\frac{(16)(13.86)}{2}\right] = 221.76$$

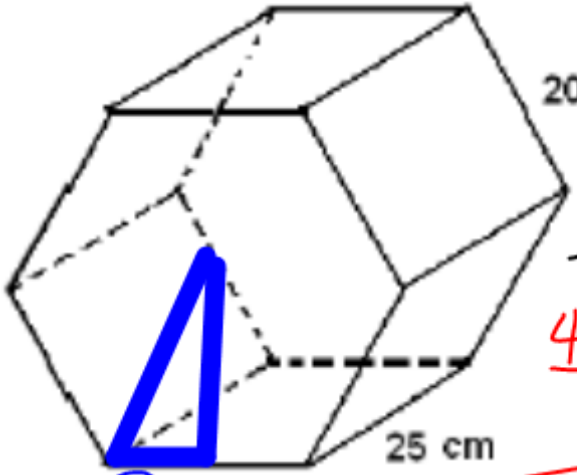
$$797.76\,cm^2$$



$$\sin 60 = \frac{h}{16}$$

$$h = 13.86$$

[EX 3] **Regular Hexagon and Rectangles**



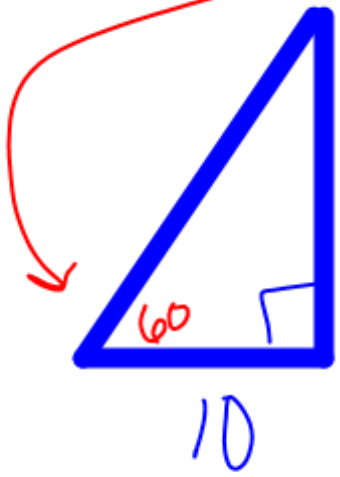
$\square = 6[20(25)] = 3000$

$+$ $\hexagon = 2[1039.2] = 2078.4$

$5078.4\ cm^2$

$\frac{4 \cdot 180}{6} = 120$

20



a $\tan 60 = \frac{a}{10}$

$a = 17.32$

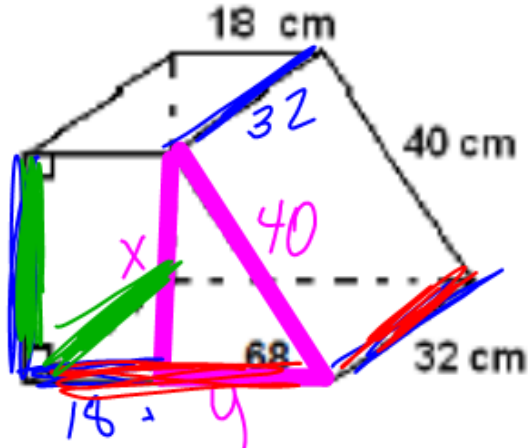
$s = 20$

$n = 6$

$A = \frac{1}{2}asn$

$= 1039.2$

[EX 4] **Trapezoids and Rectangles**



$\sin 68 = \frac{x}{40}$

$x = 37.09$

$\cos 68 = \frac{y}{40}$

$y = 14.98$

$+18 = 32.98$

$= 2\left[x(18)\right] + 2\left[\frac{x \cdot y}{2}\right] = 1890.85$

(1335 and 555.6 are the two bracketed terms)

T: $18(32) = 576$

B: $32(32.98) = 1055.36$

L: $32(x) = 1186.88$

R: $32(40) = 1280$

$5989\ cm^2$