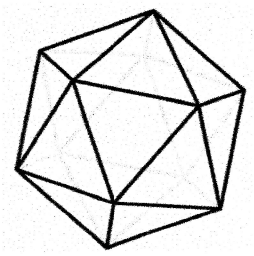
Geo Practice #25 Sec 11-1 & 11-2 Mon to Thur, May 18 to 21, 2020

1. An Icosahedron has 20 faces that are all equilateral triangles. There are 12 vertices. Find the number of Edges.



Edges = 30

$F + V = E + 2$

$20 + 12 = E + 2$

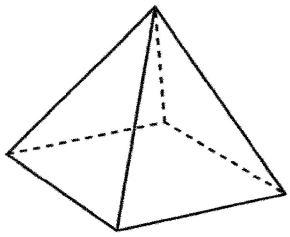
$32 = E + 2$

$-2 \quad -2$

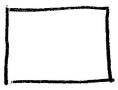
$E = 30$

For 2 and 3 draw or describe the cross section formed in each problem.

2. Using the Square Pyramid shown (the bottom is a square)

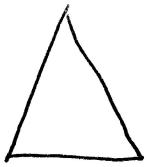


a) Horizontal Cross Section between the bottom and the point at the top.



square smaller than the base

b) Vertical Cross Section through the point at the top and parallel to one of the edges of the base.

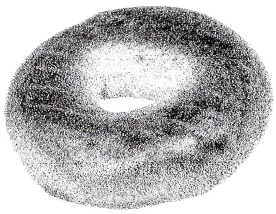


triangular Cross Section

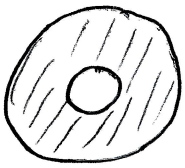
c) Vertical Cross Section not through the point at the top and is parallel to one of the edges of the base.

trapezoidal Cross Section

3. Picture a typical Bagel.



a) Horizontal Cross Section cutting the bagel in half.



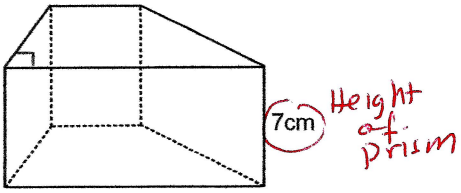
2 concentric circle

b) Vertical Cross Section cutting the bagel in half.

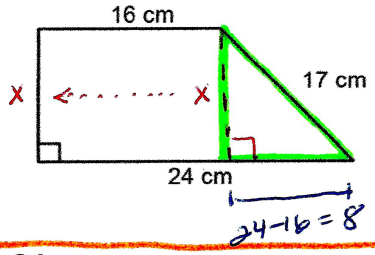
2 small circles

For 4 and 5 find the Surface Area of each prism. Round to the nearest hundredth.

4. Trapezoidal Prism

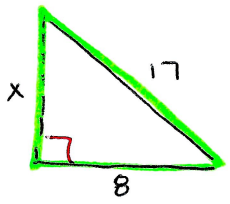


Base:



SA: = LA + 2B

504 + 600 = 1104 cm^2



$x^2 + 8^2 = 17^2$

$\sqrt{x^2} = \sqrt{17^2 - 8^2}$

$x = 15$

Area of the Base:

$B = \frac{1}{2}(16+24)(15)$

$B = 300$

$2B = 600$

Lateral Area:

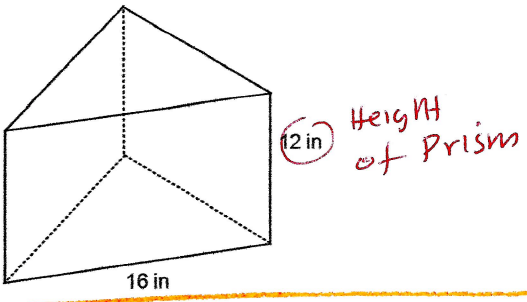
LA = (perimeter of the Base)(Height of Prism)

= (15+16+17+24)(7)

= (72)(7)

LA = 504

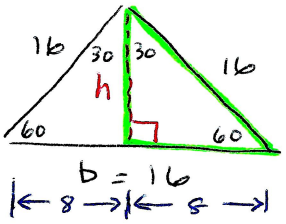
5. Base is an Equilateral Triangle

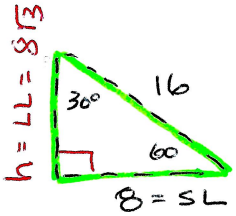


SA = LA + 2B = 576 + 128√3

SA = 797.70 in^2

BASE EQUILATERAL Δ





Area of Base:

$B = \frac{1}{2}(16)(8\sqrt{3}) = 64\sqrt{3}$

$2B = 2(64\sqrt{3})$

$2B = 128\sqrt{3}$

LATERAL AREA:

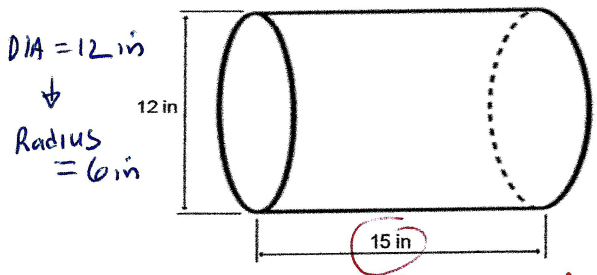
LA = (perimeter of the Base)(Height of Prism)

= (3 × 16)(12)

= (48)(12)

LA = 576

6. Find the SA of this cylinder to the nearest hundredth.



SA = LA + 2B = $180\pi + 72\pi$

$= 252\pi = 791.68\ in^2$

Base:

$B = \pi r^2 = \pi(6)^2 = 36\pi$

$2B = 72\pi$

Lateral Area:

$LA = 2\pi rh$

$= 2\pi(6)(15)$

$LA = 180\pi$

7. The surface area of a cylinder with a radius of 5cm is 800 cm^2. Find the height of the cylinder to the nearest hundredth.

Height =

$r = 5cm$

$SA = 800cm^2$

$SA = 2\pi rh + 2\pi r^2$

$800 = 2\pi(5)h + 2\pi(5)^2$

$800 = 10\pi h + 50\pi$

$-50\pi \qquad -50\pi$

$\frac{800 - 50\pi}{10\pi} = \frac{10\pi h}{10\pi}$

$h = \frac{800 - 50\pi}{10\pi}$

$h = 20.46\ cm$