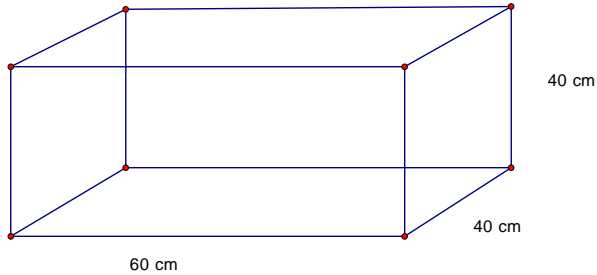


**Math 116**  
**Test 2 Review**

1) A rectangular aquarium is 60 centimeters by 40 centimeters by 40 centimeters. What is the volume of the aquarium?

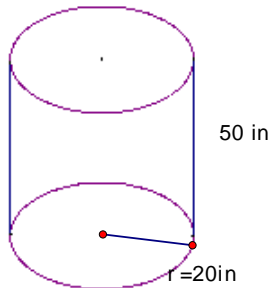


$$V = lwh$$

$$V = (60 \text{ cm})(40 \text{ cm})(40 \text{ cm})$$

$$V = 96000 \text{ cm}^3$$

2) A cylinder shaped hot water tank has a radius of 20 inches and a height of 50 inches. How much water can the hot water tank hold?



$$V = \pi r^2 h$$

$$V = (3.14)(20 \text{ cm})^2 (50 \text{ cm})$$

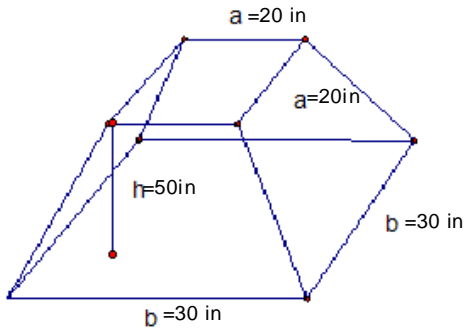
$$V = (3.14)(400 \text{ cm}^2)(50 \text{ cm})$$

$$V = 62800 \text{ cm}^2$$

3) Find the volume of a regular pyramid with a height of 40 cubits and a base that is 30 cubits by 30 cubits.

$$V = \frac{1}{3}b^2h = \frac{1}{3}(30)^2(40) = \frac{1}{3}(900)(40) = (300)(40) = 12000 \text{ cm}^3$$

4) Find the volume of a truncated pyramid with a height of 50 cubits and bases with dimensions of 30 cubits by 30 cubits and 20 cubits by 20 cubits.



$$V = \frac{h}{3}(a^2 + ab + b^2)$$

$$V = \frac{50}{3}(20^2 + (20)(30) + 30^2)$$

$$V = \frac{50}{3}(400 + 600 + 900)$$

$$V = \frac{50}{3}(1900)$$

$$V = 31667 \text{ cubic cubits}$$

5) Compare the results from problems 3 and 4

The Egyptian pyramid is larger than the regular pyramid

6) A rectangular shaped Egyptian lot is 300 cubits by 200 cubits. Find the area of the lot in square cubits and Setats.

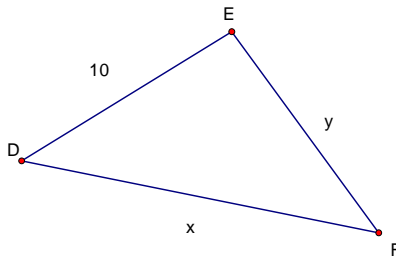
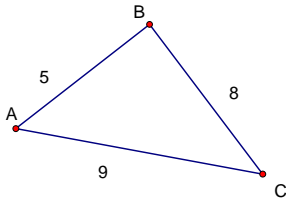
$$A = (300 \text{ cubits})(200 \text{ cubits}) = 60000 \text{ square cubits} = 6 \text{ setats}$$

7) Find the area of a circle with a radius of 12 palms using the Egyptian approximation

for Pi. ( $\pi = \frac{256}{81}$ )

$$A = \pi r^2 = \left(\frac{256}{81}\right)(12)^2 = \left(\frac{256}{81}\right)(144) = 455.1 \text{ square cubits}$$

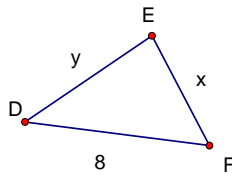
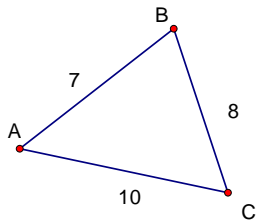
8) Given  $\triangle ABC \sim \triangle DEF$ , find  $x$  and  $y$ .



$$\frac{y}{10} = \frac{8}{5}$$
$$5y = 80$$
$$y = 16$$

$$\frac{x}{9} = \frac{10}{5}$$
$$5x = 90$$
$$x = 18$$

9) Given  $\triangle ABC \sim \triangle DEF$ , find  $x$  and  $y$ .



$$\frac{y}{7} = \frac{8}{10}$$
$$10y = 56$$
$$y = 5.6$$

$$\frac{x}{8} = \frac{8}{10}$$
$$10x = 64$$
$$x = 6.4$$

10) Perspective problems page 299 #21, page 300 #28

#21

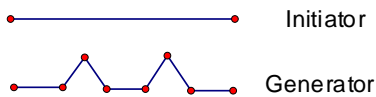
$$\frac{b}{4.5} = \frac{12.2}{24.5}$$
$$24.5b = (4.5)(12.2)$$
$$24.5b = 54.9$$
$$b = 2.24$$

$$c = 24.5 - 24.5 = 20$$

#28

Atmospheric Perspective with a little use of overlapping shapes and diminishing sizes

11) Given the information below, find the dimension of the fractal.



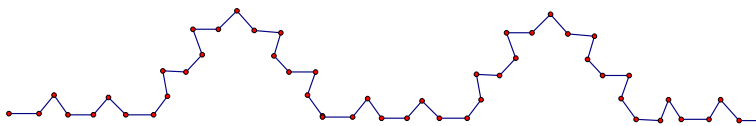
$$N = 7$$

$$r = \frac{1}{5}$$

$$s = 5$$

$$d = \frac{\log(7)}{\log(5)} = 1.21$$

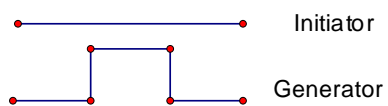
12) Draw the first iteration of the above fractal in problem 11



13) Golden ratio problems: Page 307-308 #1,3,5,14

Answer can vary

14) Given the information below, find the dimension of the fractal



$$N = 5$$

$$r = \frac{1}{3}$$

$$s = 3$$

$$d = \frac{\log(5)}{\log(3)} = 1.47$$

15) Draw the first iteration of the above fractal in problem 14

