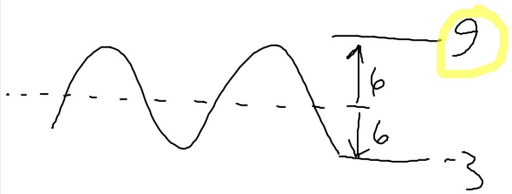
**Bellwork Thursday, March 27, 2014**

1. The amplitude of a periodic function is 6. The minimum value of the function is -3. Find the maximum value of the function.




$$Amp = \frac{max - min}{2}$$

$$6 = \frac{max - -3}{2}$$

$$12 = max + 3$$

max = 9

2. Given $\theta = 170°$ which of the following angles is a coterminal angle to $\theta$?
a) $2870°$ b) $3050°$ c) $-1640°$ d) $-2380°$

3. Given $\theta = 55°$ which of the following angles is a coterminal angle to $\theta$?
a) $-2145°$ b) $1485°$ c) $-1745°$ d) $1155°$

4. Given the following:

$\sin 30° = \frac{1}{2}$ $\cos 30° = \frac{\sqrt{3}}{2}$ $\sin 60° = \frac{\sqrt{3}}{2}$ $\cos 60° = \frac{1}{2}$

Find the exact value of each.

a) $\cos 780° = 1/2$

780° is coterminal with 60° therefore $\cos 780^0 = \cos 60^o$

b) $\sin -690° = \frac{1}{2}$

-690° is coterminal with 30° therefore $\sin -690^0 = \sin 30^o$

c) $\tan 390°$

$-360$

$\tan 30°$

$\tan = \frac{1/2}{\sqrt{3}/2}$

390° is coterminal with 30° therefore $\tan 390^0 = \tan 30^o$

$\frac{1}{2} \cdot \frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}}$

$\frac{\sqrt{3}}{3}$

5. A machine begins recording two periodic functions at the same time. The first has a period of 6 sec and the second has a period of 7 sec. After 20 seconds, the machine begins recordinga third periodic function, which has a period of 8 sec. How many seconds after the machine began recording the original two functions will all three functions be at the begninning of their cycles?

| | 1st function | 2nd function | 3rd function |
|---|---|---|---|
| Start of a cycle | 0 | 0 | 20 |
| | 6 | 7 | 28 |
| | 12 | 14 | 36 |
| | 18 | 21 | 44 |
| | 42 | 42 | 52 |
| They will all be at the beginning of a cycle after 84 sec. | 84 | 84 | 60 |
| | 126 | 126 | 68 |
| | | | 76 |
| | | | 84 |