

Welcome Back MYP Math 9!

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: <u>1 - 8</u> Topic: <u>No homework over break :)</u>	0 1 2	
Tuesday Date: <u>1 - 9</u> Topic: <u>Sin, cos, tan, (& recipricals) Table</u>	0 1 2	
Wednesday Date: <u>1 - 10</u> Topic: <u>Sin, cos, (& tan) Graphs</u>	0 1 2	
Thursday Date: <u>1 - 11</u> Topic: <u>Sin, cos, equations and graphs</u>	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	

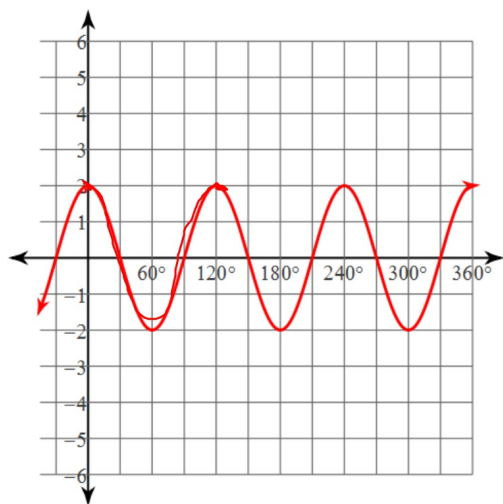
Class Plan:

1. Warm-up: Examine equations from last night's homework
2. Writing Periodic Equations
3. Practice

Late Start Day Bell Schedule		Late Start Day Bell Schedule		Late Start Day Bell Schedule	
Lunch A		Lunch B		Lunch C	
1st Hour	10:05-10:38	1st Hour	10:05-10:38	1st Hour	10:05-10:38
2nd Hour	10:43-11:16	2nd Hour	10:43-11:16	2nd Hour	10:43-11:16
3rd Hour	11:21-11:54	3rd Hour	11:21-11:54	3rd Hour	11:21-11:54
Lunch A	11:59-12:29	4th Hour	11:59-12:32	4th Hour	11:59-12:32
4th Hour	12:34-1:07	Lunch B	12:37-1:07	5th Hour	12:37-1:12
5th Hour	1:12-1:45	5th Hour	1:12-1:45	Lunch C	1:17-1:45
6th Hour	1:50-2:23	6th Hour	1:50-2:23	6th Hour	1:50-2:23
7th Hour	2:28-3:00	7th Hour	2:28-3:00	7th Hour	2:28-3:00

Exercises: 1) Find amplitude, period, and principal axis.
2) How does amp, period, & axis relate to coefficients of each trigonometric equation?

1) $y = 2\cos 3\theta$

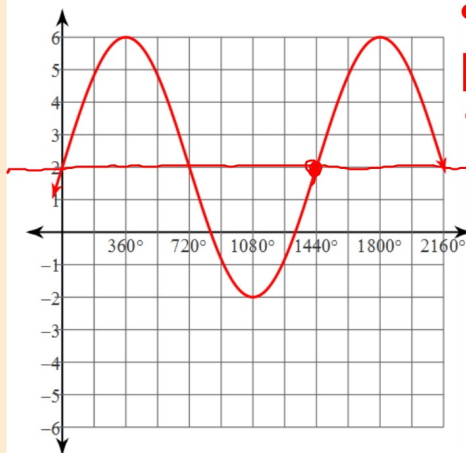


Amplitude = 2
axis = 0
period = 120°
3 waves in 360°



Exercises: 1) Find amplitude, period, and principal axis.
2) How does amp, period, & axis relate to coefficients of each trigonometric equation?

4) $y = 4\sin \frac{\theta}{4} + 2$



Amplitude = 4
axis = 2
period = 1440°
1/4 of a full wave in 360°

General Sine Function

$$y = a \sin bx + c$$

General Cosine Function

$$y = a \cos bx + c$$

- in $y = a \cos x$, $|a|$ determines the amplitude
 - in $y = \cos bx$, b affects the period and the period is $\frac{360^\circ}{|b|}$
 - in $y = \sin x + c$, c affects the principal axis.
-
- **b** = the number of full waves in 360° .

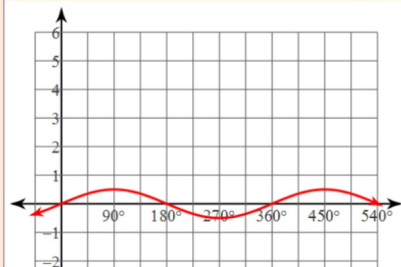
Do: Writing Periodic Function Equations Worksheet

*Use characteristics of functions to write your equations... work together!

1) Sine or Cosine?

(a) Amplitude ____ (c) Princ. Axis ____ Period ____

(b) Number of waves in 360° ____

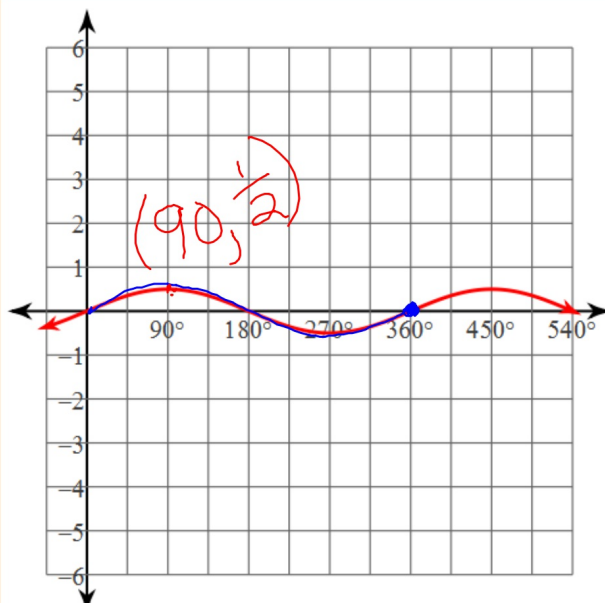


Equation

Done?

Verify your equation works! (Plug in an input - is that pt on your graph?)

1) Sine or Cosine? *Crosses y-axis at c*
 (a) Amplitude $\frac{1}{2}$ (c) Princ. Axis 0 Period 360
 (b) Number of waves in 360° 1



Equation

$$y = \frac{1}{2} \sin(\theta) + 0$$

$$y = \frac{1}{2} \sin \theta$$

Verify

$$\theta = 90$$

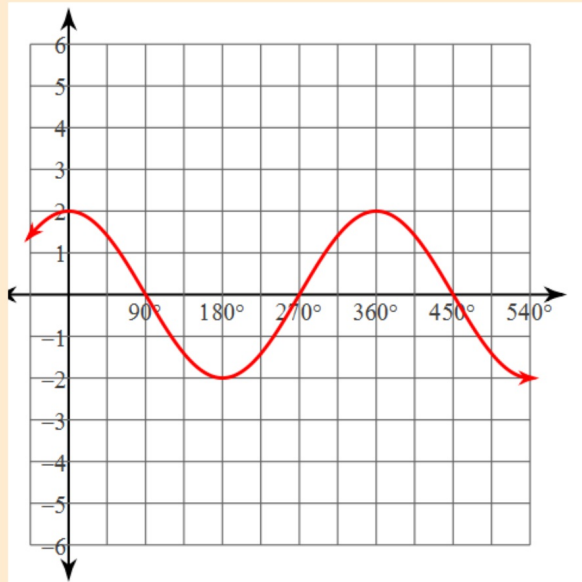
$$y = \frac{1}{2} \sin(90)$$

$$y = \frac{1}{2}(1) = \frac{1}{2}$$

2) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

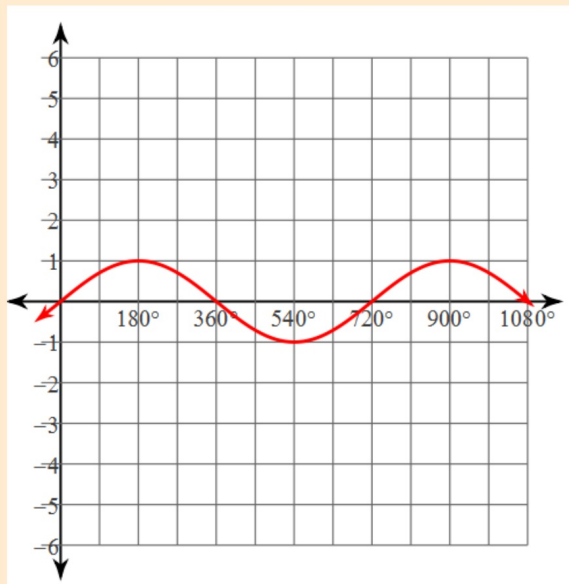


Equation

3) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

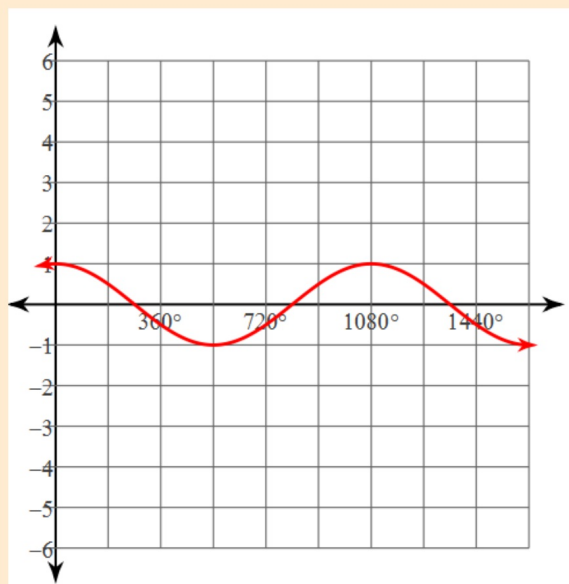


Equation

4) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

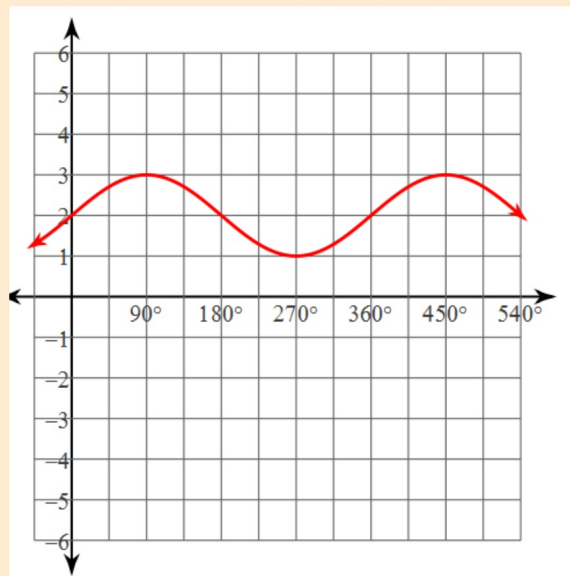


Equation

5) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

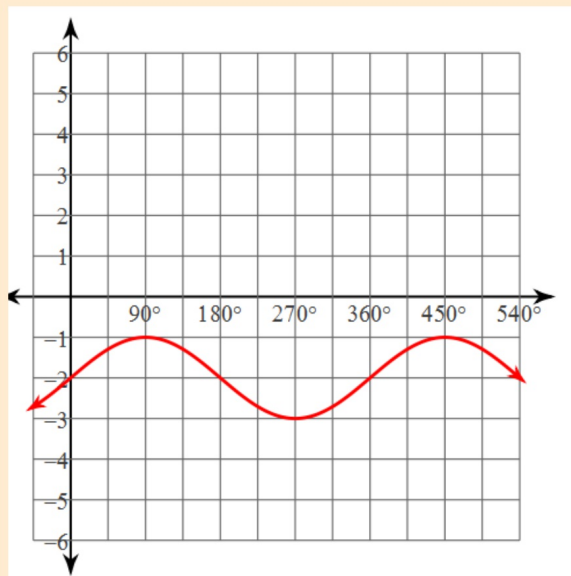


Equation

6) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

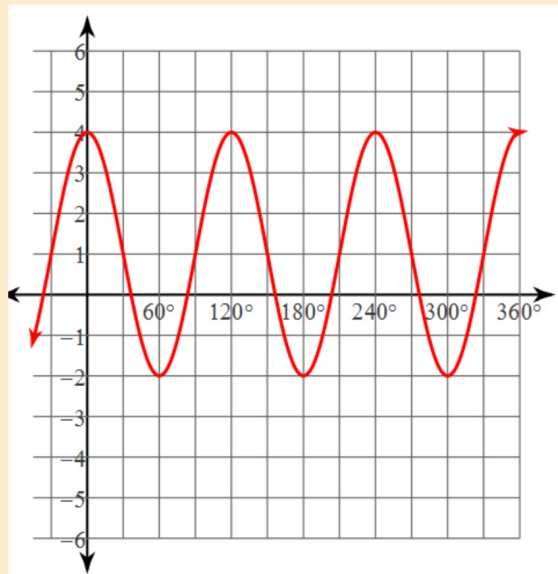


Equation

7) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

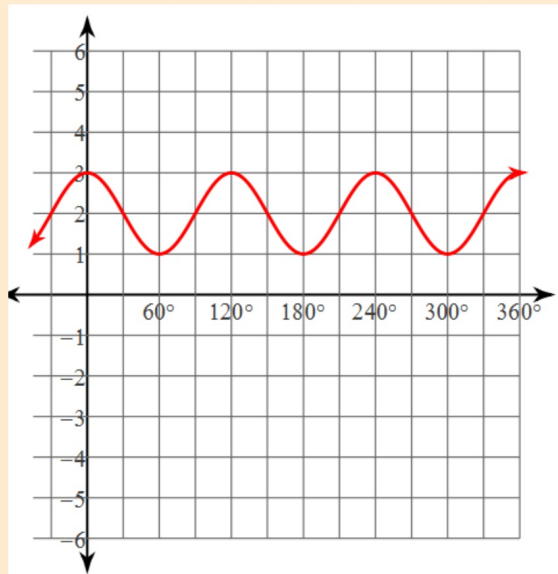


Equation

8) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

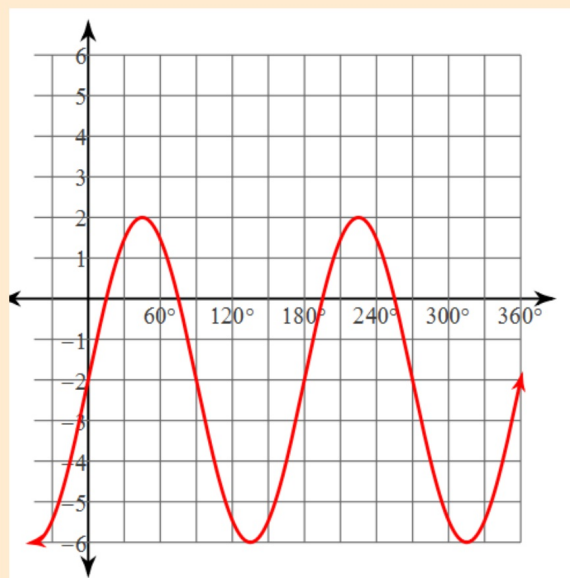


Equation

9) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

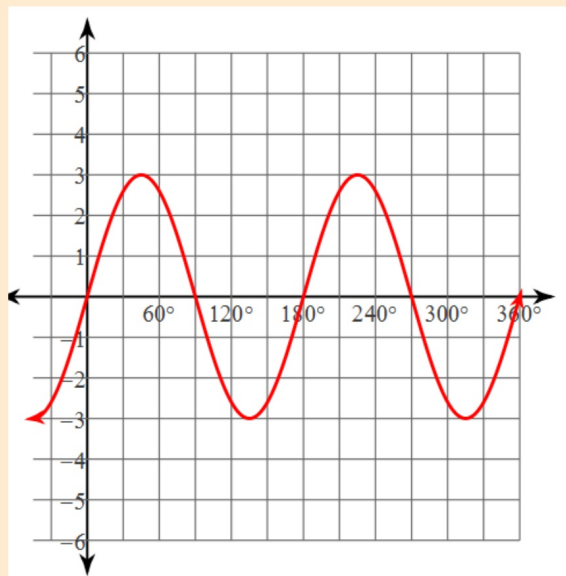


Equation

10) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

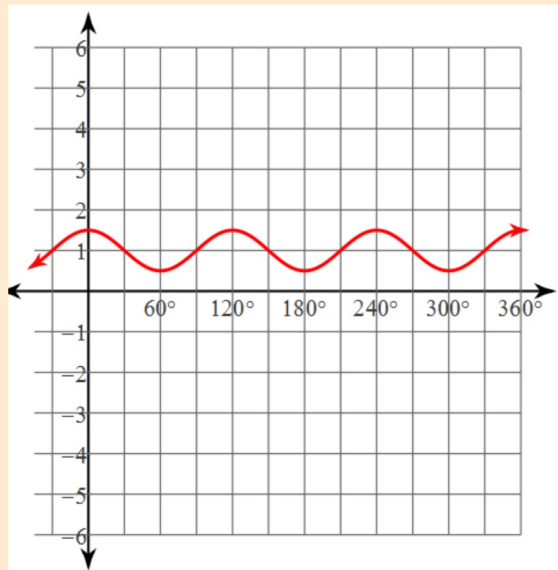


Equation

11) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

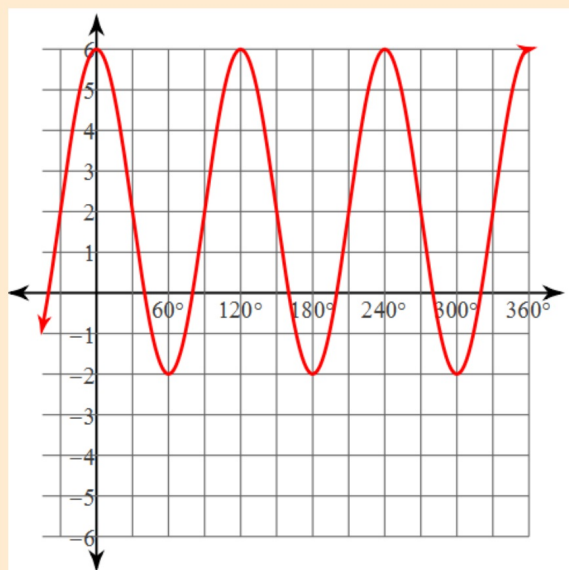


Equation

12) Sine or Cosine?

(a) Amplitude _____ (c) Princ. Axis _____ Period _____

(b) Number of waves in 360° _____

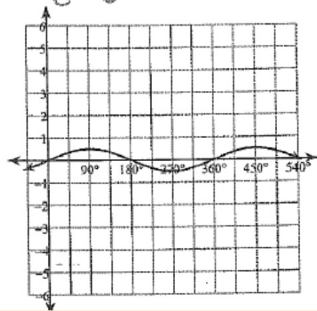


Equation

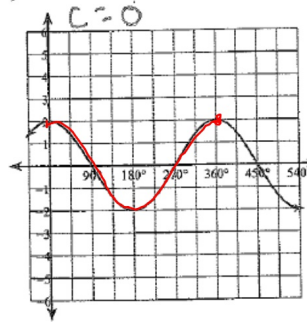
SOLUTIONS

Identify the amplitude, period, and principal axis. Write the equation of the graph. Consider how you would defend the accuracy of your equation. How could the equation be verified??

1) $a = .5$
period = 360 $y = \frac{1}{2} \sin \theta$
 $c = 0$

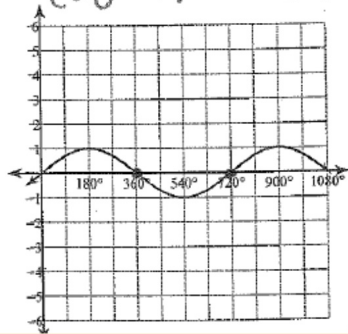


2) $a = 2$ period = 360
 $c = 0$ $y = 2 \cos \theta$



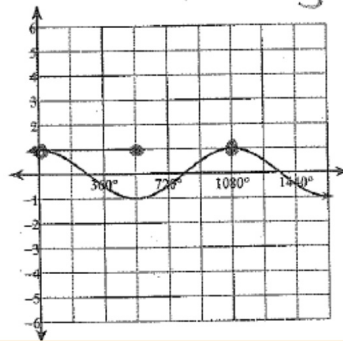
SOLUTIONS

3) $\frac{1}{2}$ wave in 360° , $b = \frac{1}{2}$
 $a = 1$
 $c = 0$ $Y = \sin\left(\frac{1}{2}\theta\right)$



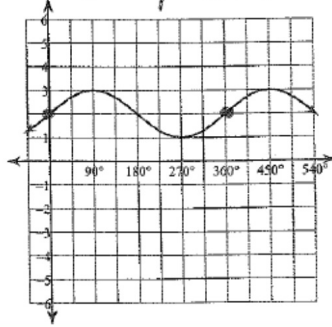
(1. wave)

4) $a = 1$ $\frac{1}{3}$ of wave in 360°
 $c = 0$ $Y = \cos\frac{\theta}{3}$

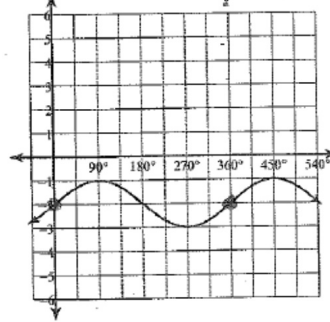


SOLUTIONS

5) $a=1$ period = 360° (1 wave)
 $c=2$ $y = \sin\theta + 2$

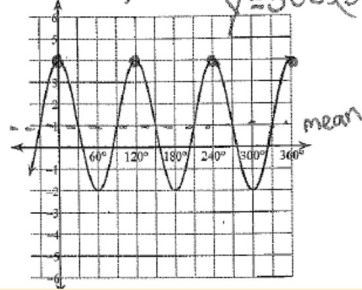


6) $a=1$ period = 360° (1 wave)
 $c=-2$ $y = \sin\theta - 2$

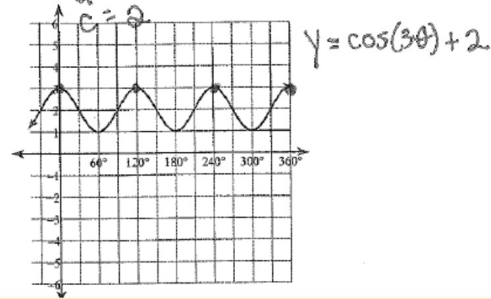


SOLUTIONS

7) 3 waves in 360° , period = 120°
 $a=3, c=1$
 $y=3\cos(3\theta)+1$

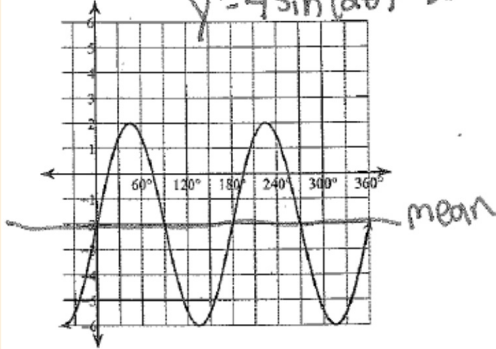


8) 3 waves in 360° , $\frac{360^\circ}{3} = 120^\circ$ (period)
 $a=1, c=2$
 $y = \cos(3\theta) + 2$

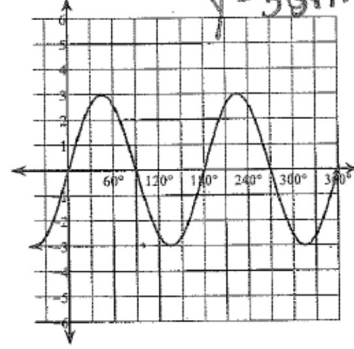


SOLUTIONS

9) $a=4$ 2 waves in 360°
 $c=-2$ Period = 180°
 $y=4\sin(2\theta)-2$

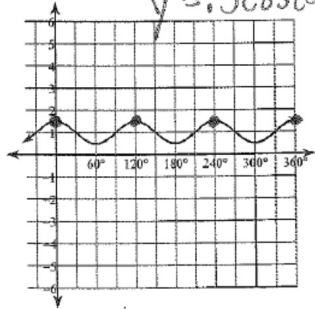


10) $a=3$ 2 waves in 360°
 $c=0$ Period = 180°
 $y=3\sin(2\theta)$



SOLUTIONS

11) $a = .5$ 3 waves in 360°
 $c = 1$ - period = 120°
 $y = .5\cos(3\theta) + 1$



12) $a = 4$ 3 waves in 360°
 $c = 2$ period = 120°
 $y = 4\cos(3\theta) + 2$

