

Questions from homework

Put in standard form

$$\cancel{3} \cdot \frac{y+5}{\cancel{3}} = 3 \cdot \cos[2\theta + 90^\circ] + 6 \cdot \cancel{3}$$

$$y+5 = 3\cos[(2\theta+90^\circ)] + 18$$

$$y = \underline{3}\cos[\underline{2}(\underline{\theta} + \underline{45^\circ})] + \underline{13}$$

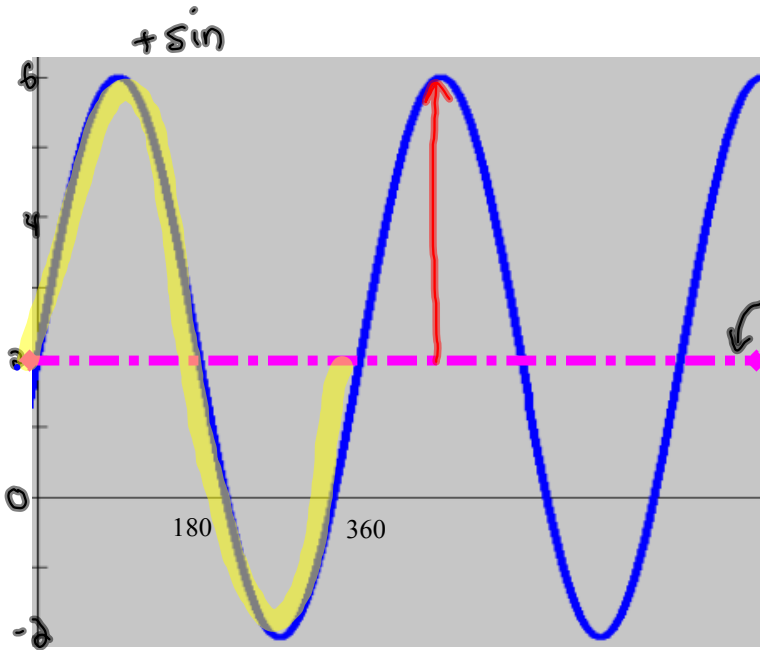
$$A=3$$

$$k=2$$

$$P = \frac{360}{2} \\ = 180$$

$$C = -45$$

$$D = 13$$



Find:

Local Max: 6

Local Min: -2

Equation of Sinusoidal Axis:

$y = 2$

Period: 360

Amplitude: 4

Horizontal Translation (C): 0

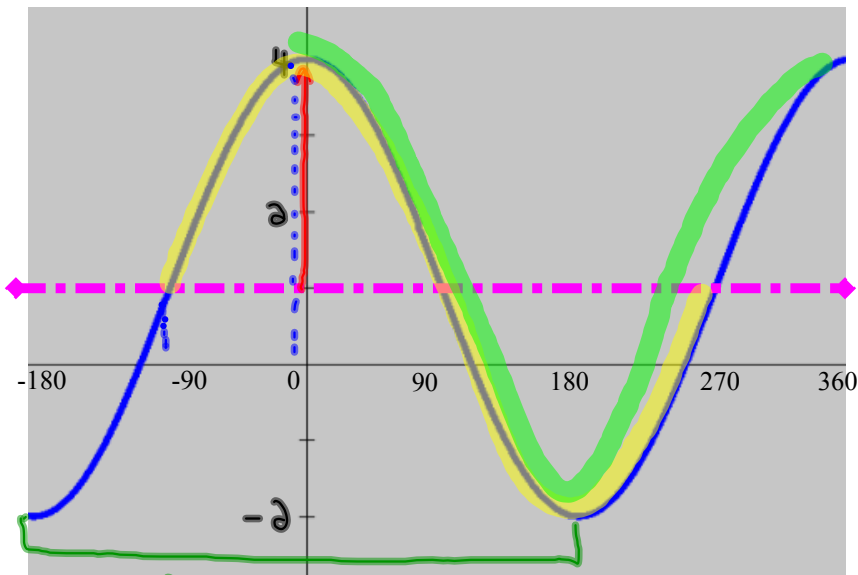
Vertical Translation (D): 2

Equation of Graph: $y = 4 \sin[1(\theta + 0)] + 2$

$y = 4 \sin(\theta) + 2$

$k = \frac{360}{360} = 1$

Determine a sine and a cosine equation for this graph



$$A = 3$$

$$P = 360$$

$$K = 1$$

$$D = 1$$

$$P = 180 - (-180) = 360$$

+ sin $C = -90^\circ$ —

$$y = 3 \sin[1(\theta + 90^\circ)] + 1$$

$$y = 3 \sin(\theta + 90) + 1$$

+ cos $C = 0$ —

$$y = 3 \cos[1(\theta + 0)] + 1$$

$$y = 3 \cos(\theta) + 1$$

$$y = 2 \sin[2(\theta - 30)] + 1$$

$$(x, y) \rightarrow \left(\frac{x}{k} + C, Ay + D \right)$$

$$A = 2$$

$$k = 2$$

$$C = 30$$

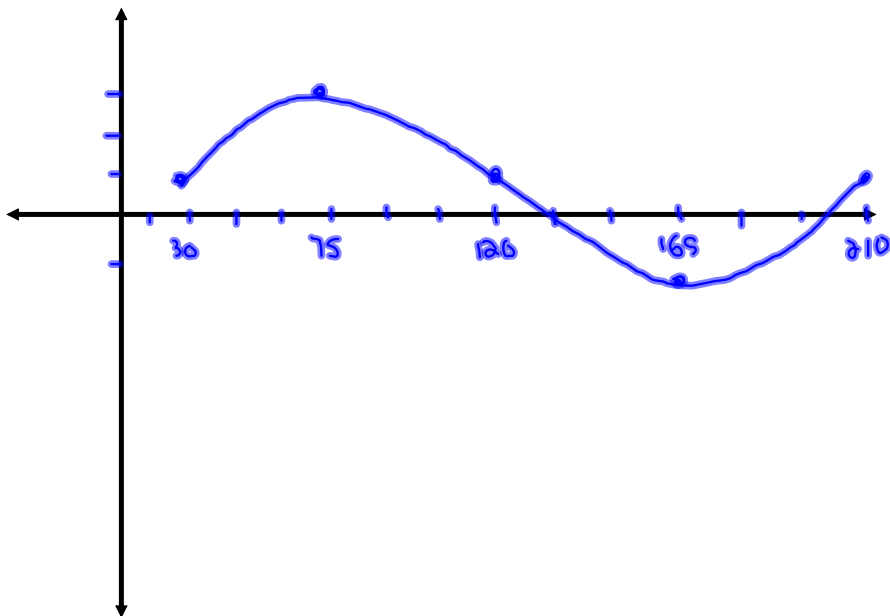
$$D = 1$$

$$P = 180$$

$$y = \sin \theta$$

θ	y
0	0
90	1
180	0
270	-1
360	0

θ	y
30	1
75	3
120	1
165	-1
210	1



A water wheel with a radius of 8m makes one complete revolution every 20 seconds. If 3m of the wheel is submerged and the bucket starts on the sinusoidal axis and goes up, $+5\sin$
 find the following information:

a) Amplitude = 8 c) $k = \frac{360}{20} = 18$ e) Max Height = 13

b) Period = 20 d) Vertical Translation = 5 f) Min Height = -3

g) Equation of the graph: $y = 8\sin[18(x)] + 5$

h) Sketch the graph for one revolution

