Sinusoidal axis ⇒ $y = 4$

Amplitude ⇒ 2

$y = 2\sin x + 4$

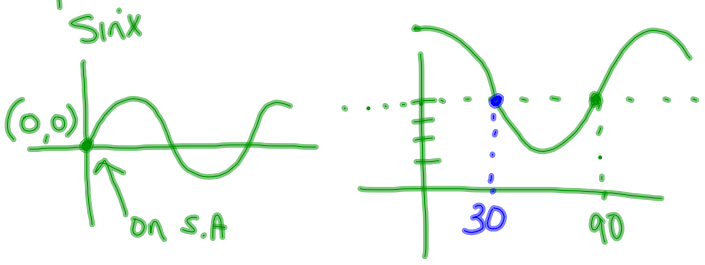
period = 120° (original 360°)

H.S ⇒ $\frac{\text{period of the graph}}{360°}$

$\Rightarrow \frac{120°}{360} = \frac{1}{3}$

$y = 2\sin 3(x) + 4$

phase shift (h.t)

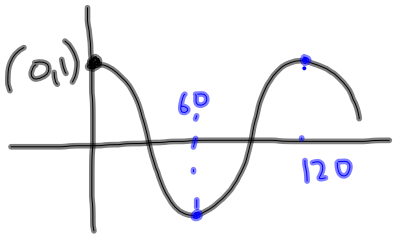


$y = 2\sin 3(x - 90°) + 4$

or

$y = -2\sin 3(x - 30°) + 4$

For $y = \cos x$



$y = 2\cos 3(x) + 4$

$y = -2\cos 3(x - 60°) + 4$

$y = 2\cos 3(x - 120°) + 4$

39 a) $y = \sin(x - 120°)$

b) $y = -2\sin(x - 120°)$ or $y = 2\sin(x - 300$

c) $y = \sin 2x$

d) $y = \sin 3(x) + 2$

e) $y = \frac{1}{2}\sin(x - 30) - 2$

f) $y = -2\sin 3(x) + 5$