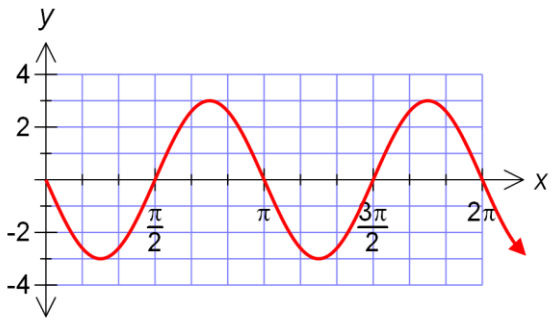
M8LE2 Check Your Understanding Challenge

Instructions: *Respond to each question below. Show the steps you followed to arrive at a solution – show your work. Be sure to save your work when done.*

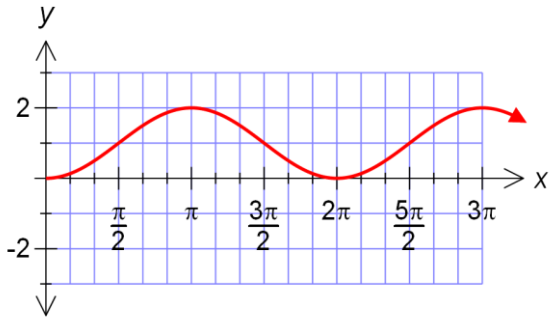
Feel free to use any method presented in this learning experience to solve each of the following questions. Make sure to get some practice using different methods.

1. Find a possible equation for each of the following graphs:

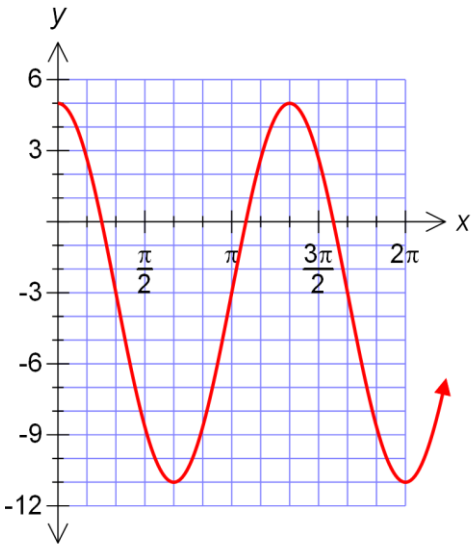
a)



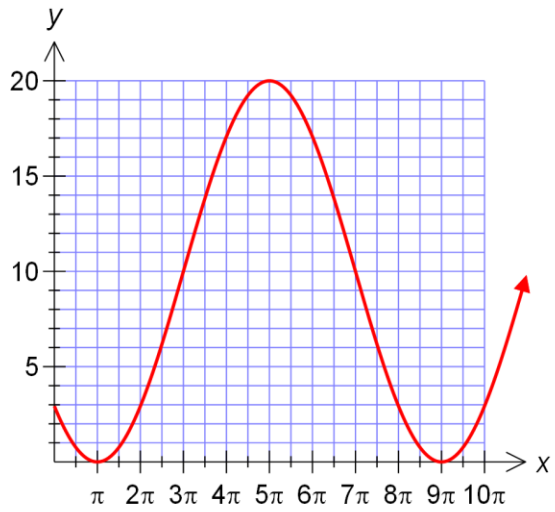
b)



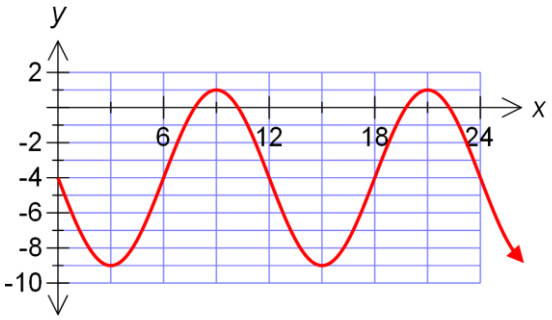
c)



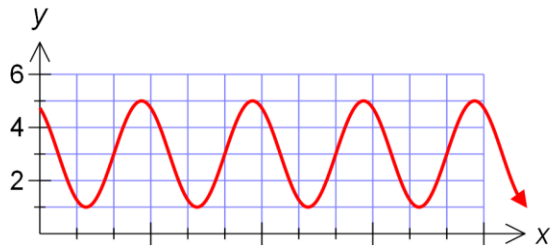
d)


y
20
15
10
5
x
π 2π 3π 4π 5π 6π 7π 8π 9π 10π

e)


y
2
-2
-4
-6
-8
-10
x
6
12
18
24

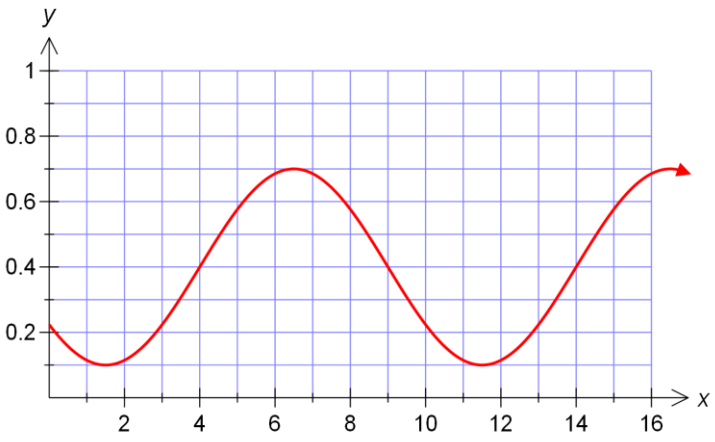
f)


y
6
4
2
x

g)


y
150
120
90
60
30
-30
x
50
100
150
200
250
300

h)



2. Graph at least one period of each of the following sinusoidal graphs:

a) $y = 0.5\sin x - 3$

b) $y = \sin(3x - \pi)$

c) $y = -2\sin\left(x + \frac{4\pi}{3}\right) - 1$

d) $y = \sin\left(2x - \frac{\pi}{2}\right) + 4$

e) $y = 4\sin\left(\frac{1}{3}(x - 3\pi)\right)$

f) $y = -10\sin\left(3\left(x - \frac{\pi}{2}\right)\right) + 4$

g) $y = 12\sin\left(\frac{2\pi}{180}(x - 30)\right)$

h) $y = 30\sin\left(\frac{2\pi}{24}(x - 18)\right) - 10$

3. Draw at least one period of a sinusoidal graph for each of the following using the properties given:

a) The period is π
The amplitude is 4
A maximum value is (0, 5)

b) The distance between two consecutive maximums is 3π
The amplitude is 12
The central axis is at y = -3
One point on the curve is at (π, -3)

c) Three full periods are shown over 108 units
One maximum value is at (8, 20) and an adjacent minimum is (26, 8)