

Math 242

Chp. 9 Exercises

Name: _____

1. Sketch the following graphs :

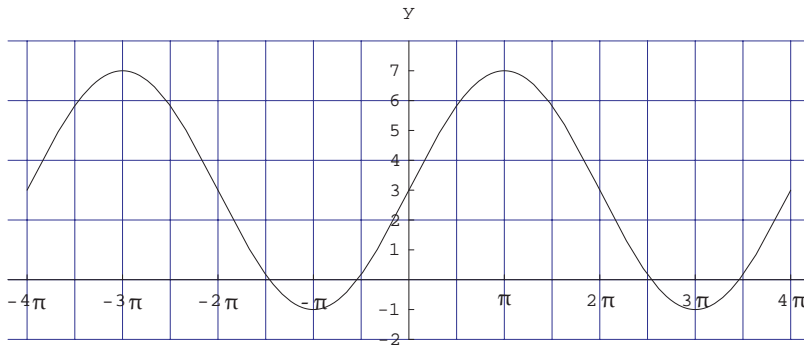
(show one full period, mark the range values, starting and ending points, and middle value for x)

a) $y = 3 \sin x$ b) $y = \sin 3x$ c) $y = \sin(x - 3)$ d) $y = \sin(x) + 3$

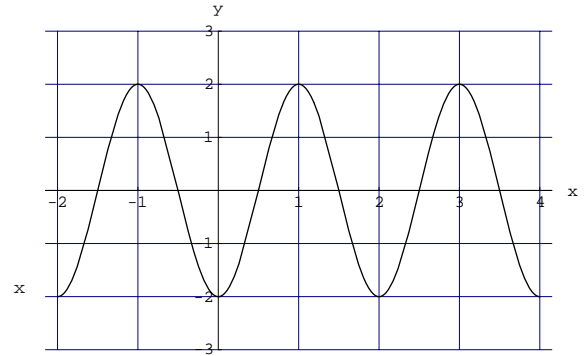
e) $y = 3 \sin 3(x - 3) + 3$ f) $y = 2 \cos\left(\frac{\pi}{3}x\right) - 1$ g) $y = 3 \sin\left(4x + \frac{2\pi}{3}\right)$

2. Find equations for the following graphs in both forms: $y = A \sin B(x - D) + C$ and $y = A \cos B(x - D) + C$

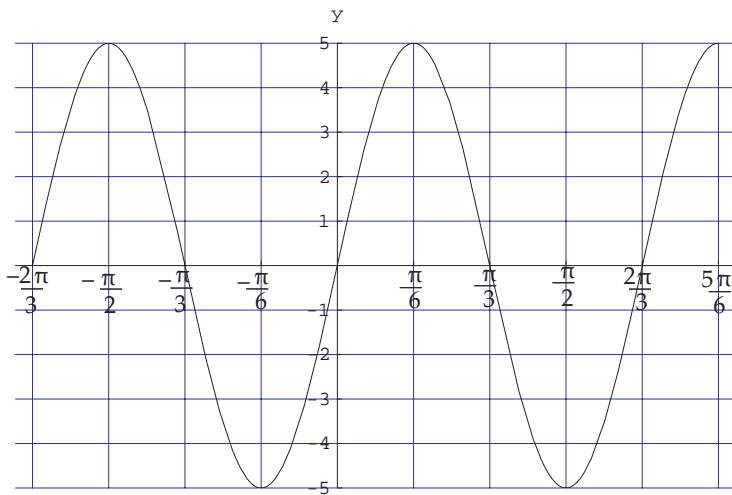
a)



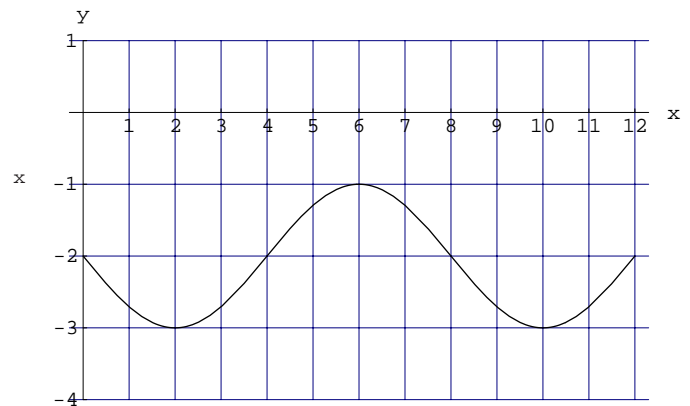
b)



c)



d)



3. The average hourly water height (tide) in Boston Harbor is shown in the table.

Assume that we begin with midnight as $t = 0$ and determine a model function of the form $y = A \cos(Bt) + C$ to give water height as a function of time.

Hour	Height	Hour	Height
0	9.9	6	0.0
1	9.2	7	1.1
2	7.5	8	3.0
3	5.0	9	4.7
4	2.6	10	7.2
5	1.0	11	9.3