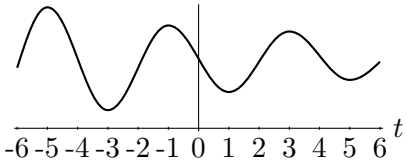
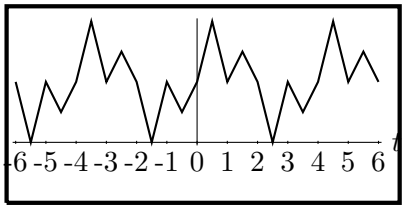
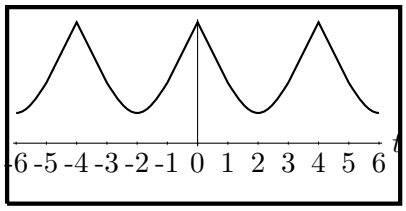
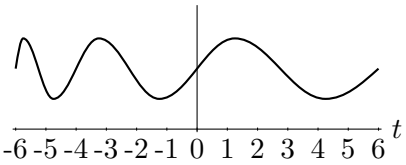
3. [17 points]

a. [4 points] Circle all graphs in which the graphed function appears to be periodic with more than one period shown.

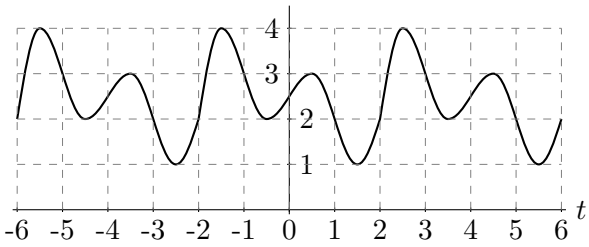








b. [2 points] Find the period of the function in the following graph:



The period is __4__.

c. [5 points] Find the midline and amplitude of the function graphed in **b.**

The midline is __y=2.5__.

The amplitude is __1.5__.

For parts **d.** and **e.** suppose $C(t)$ is the total number of calls received by a call center t hours after 8:00am on a normal day. Each sentence describes the number of calls the center receives on a particular day; circle the expression that corresponds to the given description.

d. [3 points] "The call center received 20 more calls than normal right at the beginning of the day, but otherwise it was a normal day."

$\boxed{C(t)+20}$ $C(t+20)$ $20C(t)$ $C(20t)$ None of these

e. [3 points] "The center was closed until noon, and at all times during the afternoon the call volume was twice what it normally would have been 4 hours earlier."

$2C(t+4)$ $C(2t+8)$ $C(2t+4)$ $\boxed{2C(t-4)}$ None of these