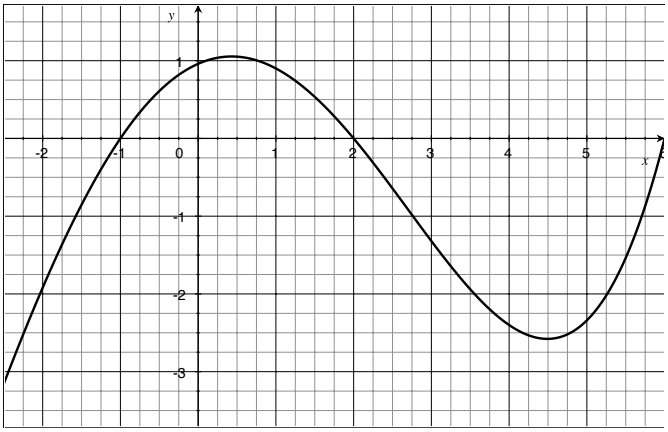
Name: _____

You have five minutes to complete the following problems, without using your notes or your book.

1. Consider the function $f(x)$ whose graph is given below.



(a) What are the critical points? (Give x and y values.)

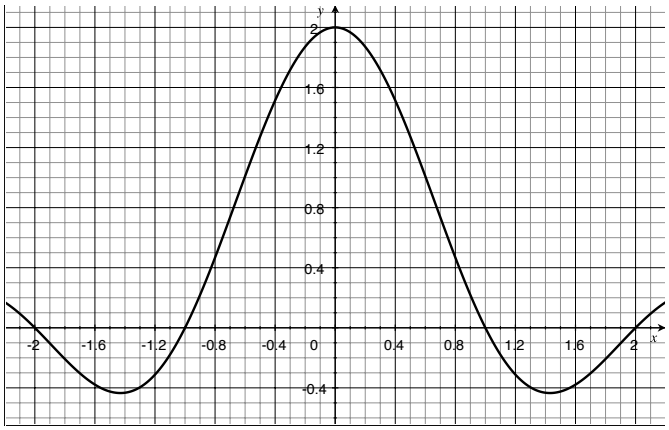
(b) Give the locations and values of any local maxima:

(c) Give the locations and values of any local minima:

(d) Give the location(s) and value of the global maximum on the domain shown. (You may assume the domain is closed.)

(e) Give the location(s) and value of the global minimum on the domain shown. (You may assume the domain is closed.)

2. The *derivative* $f'(x)$ of a function $f(x)$ is shown below.



(a) Give the locations (x-values) of any critical points of $f(x)$.

(b) Give the locations (x-values) of any inflection points of $f(x)$.

3. A contour diagram for a function $f(x, y)$ is shown below. Estimate the position(s) and approximate value of the global maxima and minima on the region shown.