Author 1 _____ ☐

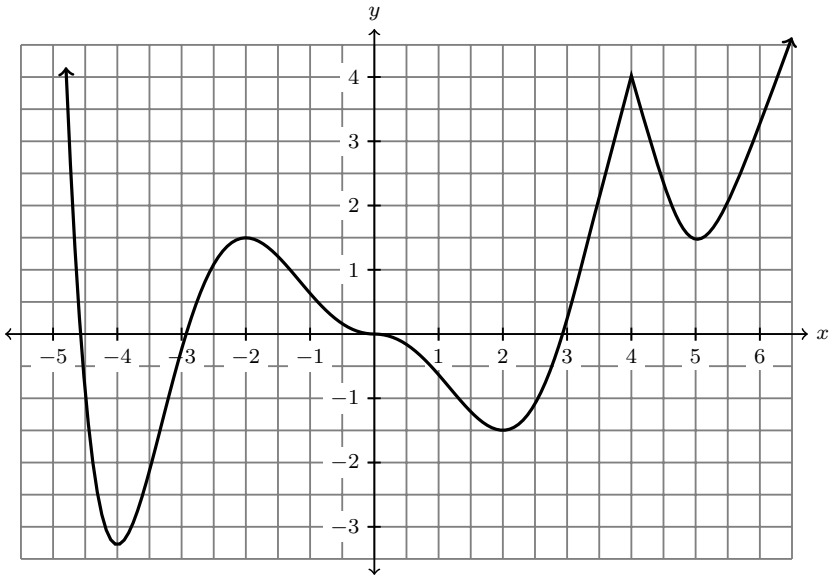
Author 2 _____ ☐

Author 3 _____ ☐

Author 4 _____ ☐

Worksheet 15

1. The graph of $f(x)$ is below.



(a) What is the minimum value for f on $[-3, 5]$?

(b) What is the maximum value for f on $[-3, 5]$?

(c) What is the minimum value for f on $[0, 3.5]$?

(d) What is the maximum value for f on $[0, 3.5]$?

(e) What is the minimum value for f on $(0, 3.5)$?

(f) What is the maximum value for f on $(0, 3.5)$?

(g) What is the minimum value for f on $(-\infty, \infty)$?

(h) What is the maximum value for f on $(-\infty, \infty)$?

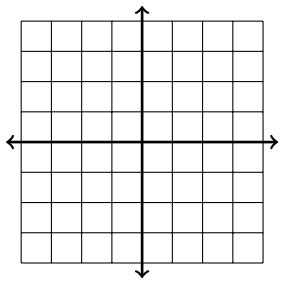
2. Let $f(x)$ be the same as in the previous problem.

(a) Find all x-values where f has a local minimum.

(b) Find all x-values where f has a local maximum.

3. Find all absolute and local extrema for the following by graphing.

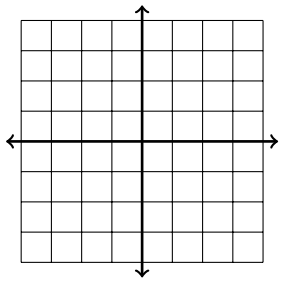
(a) $f(x) = x^2$



Abs. max: *Local max's:*

Abs. min: *Local min's:*

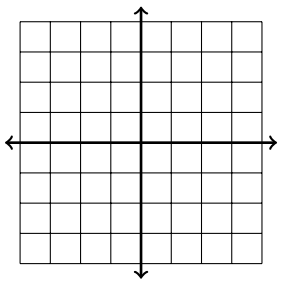
(b) $f(x) = x^3$ on $[-1, 2]$



Abs. max: *Local max's:*

Abs. min: *Local min's:*

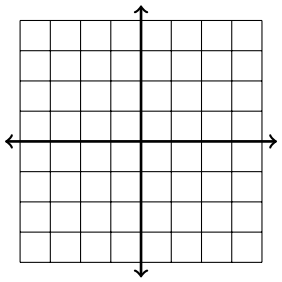
(c) $f(x) = x(x-2)(x+2)$



Abs. max: *Local max's:*

Abs. min: *Local min's:*

(d) $f(x) = \sin x$



Abs. max: *Local max's:*

Abs. min: *Local min's:*

4. Find the absolute extrema of $f(x) = x^2 e^{-3x}$ on $[-1, 1]$.