

Happy Wednesday, September 14

Do Now:

Find the maximum/minimum of the graphs below using your calculator.



$$f(x) = (x + 2)^2 \quad g(x) = -x^2 + 5x + 7$$

Sep 14-6:54 AM



Snapshot of what's ahead

Today: Max/Min, Intervals

Thursday: (sub) Continuous Functions

Friday: End Behavior

Monday: Review

Tuesday: Quiz

Sep 14-7:43 AM

Unit 2 Graphing Calculators needed!

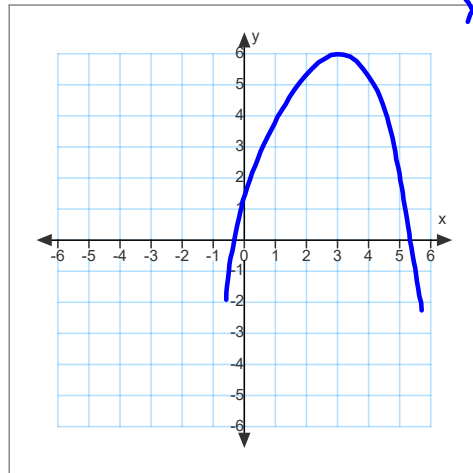
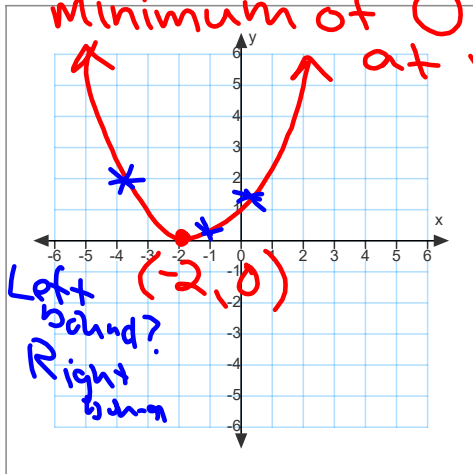
LT1 Finding Maximum and Minimum points of functions

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

y-values $g(x) = -x^2 + 5x + 7$

12.25
at
 $x = 2.5$

Minimum of 0 at $x = -2$.



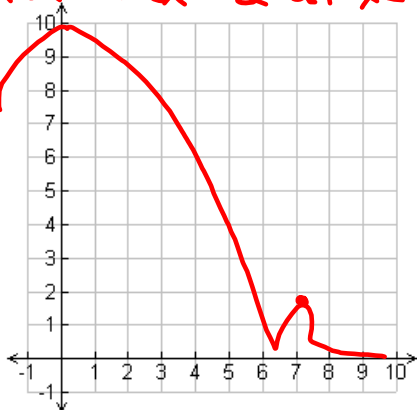
Aug 23-9:25 AM

Sketch a graph

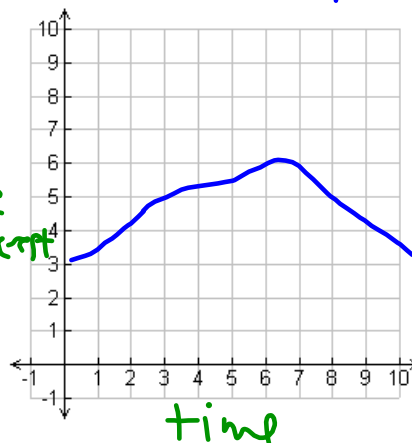
Example 1: Mr. Ruback (an English teacher) is talking with Ms. Stilson about math. Sketch a graph of Mr. Ruback's level of interest in the conversation as time goes on.

absolute max 10
local max 2 at $x = 7$

max 6 $x = 6$



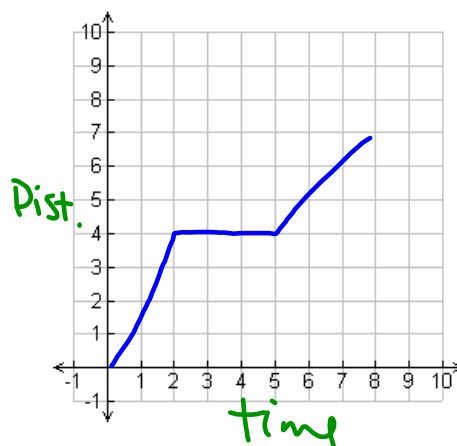
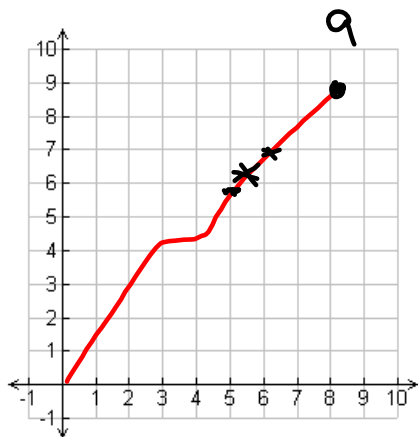
level of interest



Sep 13-4:42 PM

Sketch a graph

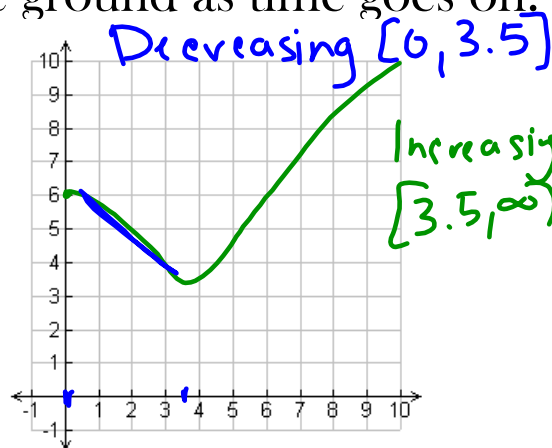
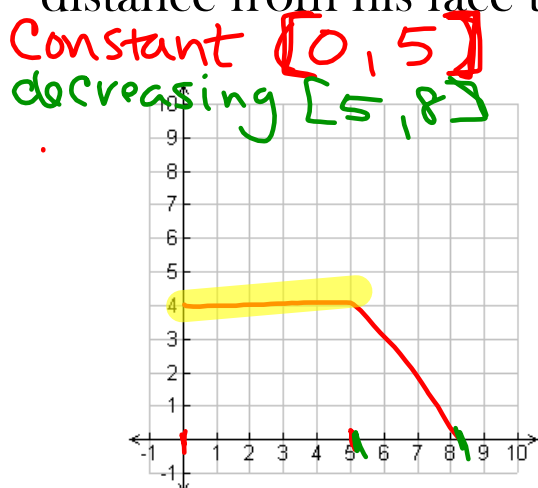
Example 2: Ethan is running a race. Halfway through, he stops to pet a cute puppy. He then continues to run. Graph his distance away from the start as time goes on.



Sep 13-4:46 PM

Sketch a graph

Example: Jake is running to catch a pass, but is tackled after he catches it. Sketch a graph of the distance from his face to the ground as time goes on.

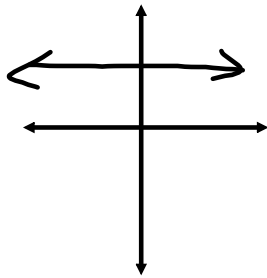


Sep 13-4:50 PM

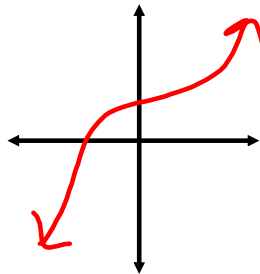
LT2- Finding INTERVALS of functions

X values

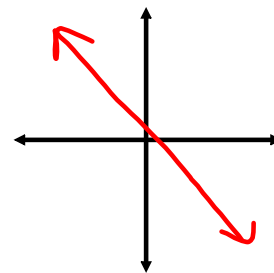
Constant



Increasing



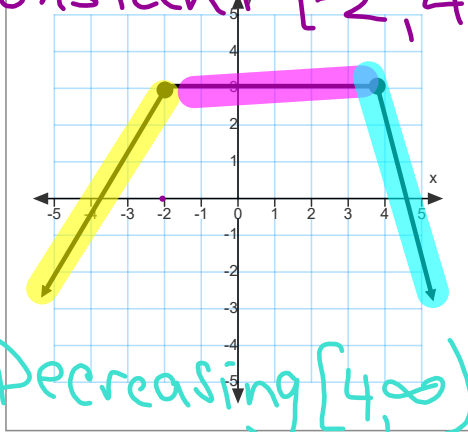
Decreasing



Sep 6-9:38 AM

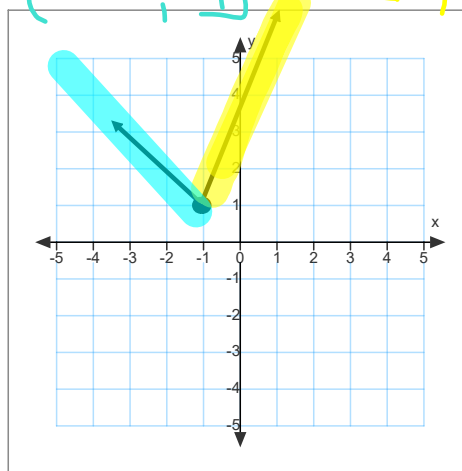
Intervals of a function

Increasing $(-\infty, -2]$
Constant $[-2, 4]$

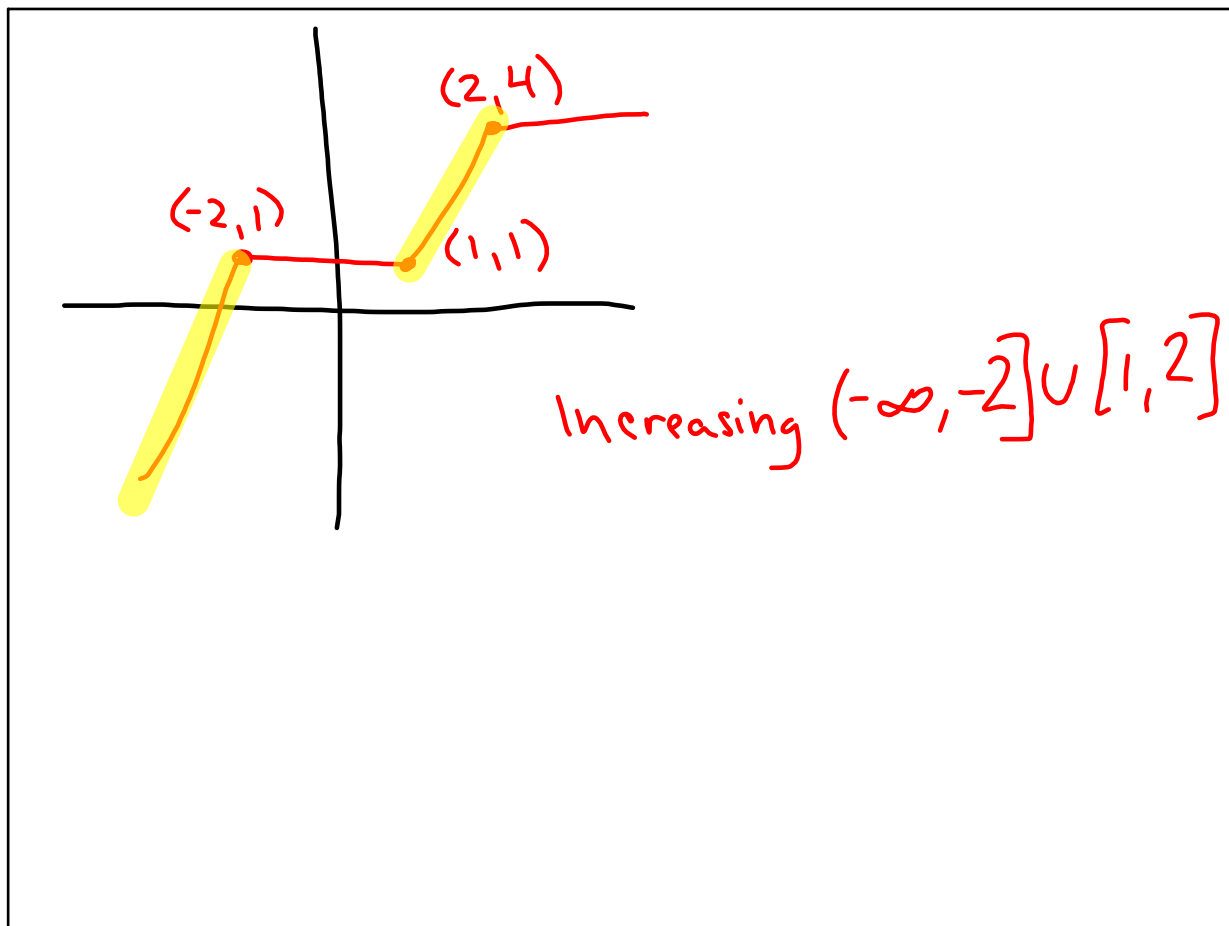


Decreasing $[4, \infty)$

Decreasing $(-\infty, -1]$ Increasing $[-1, \infty)$



Sep 6-9:39 AM

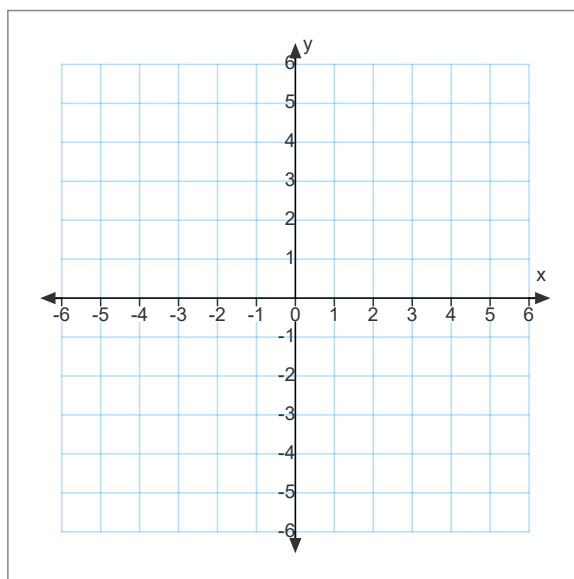


Sep 14-12:39 PM

Find the maximum and minimum.

Then describe the intervals of
increase and decrease for

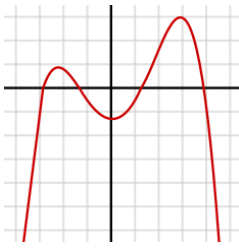
$$f(x) = (x + 3)(x - 1)^2$$

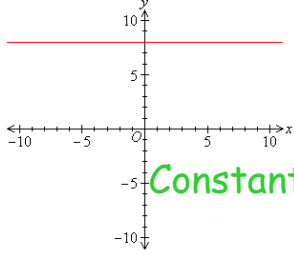


Sep 6-9:42 AM

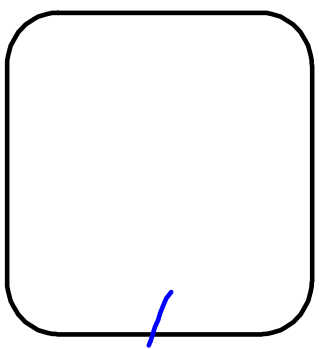
Boundness

Bounded above

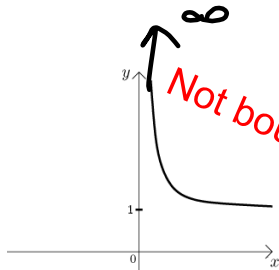




Constant

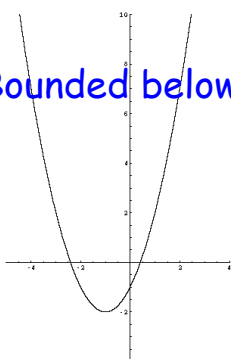


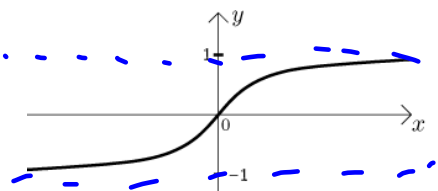
Not bounded



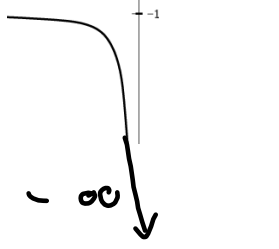
∞

Bounded below





Bounded



$-\infty$

Sep 6-9:44 AM

Exit Slip:

When reporting the maximum value of a function, do you write the x coordinate of the point or the y coordinate?

When reporting the interval of increase or decrease of a function do you write the x interval or the y interval?

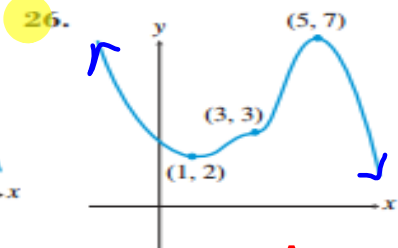
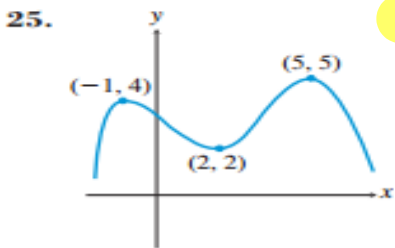
Sep 14-7:57 AM

Homework: Section 1.2 page 102

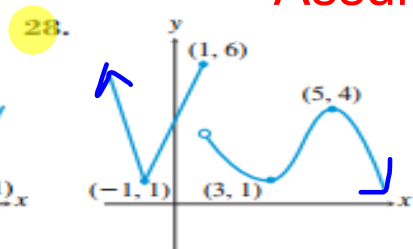
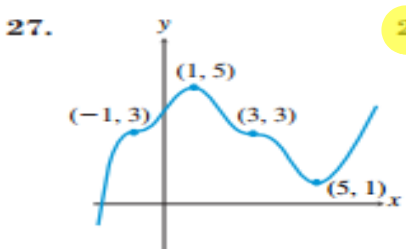
#25-34 EVENS, 41-46 EVENS, (Max/Min and Intervals)

#35-40 (Boundness)

In Exercises 25–28, state whether each labeled point identifies a local minimum, a local maximum, or neither. Identify intervals on which the function is decreasing and increasing.



Assume arrows



Aug 23-1:21 PM

In Exercises 29–34, graph the function and identify intervals on which the function is increasing, decreasing, or constant.

- 29. $f(x) = |x + 2| - 1$
- 30. $f(x) = |x + 1| + |x - 1| - 3$
- 31. $g(x) = |x + 2| + |x - 1| - 2$
- 32. $h(x) = 0.5(x + 2)^2 - 1$
- 33. $g(x) = 3 - (x - 1)^2$
- 34. $f(x) = x^3 - x^2 - 2x$

In Exercises 41–46, use a grapher to find all local maxima and minima and the values of x where they occur. Give values rounded to two decimal places.

- 41. $f(x) = 4 - x + x^2$
- 42. $g(x) = x^3 - 4x + 1$
- 43. $h(x) = -x^3 + 2x - 3$
- 44. $f(x) = (x + 3)(x - 1)^2$
- 45. $h(x) = x^2\sqrt{x + 4}$
- 46. $g(x) = x|2x + 5|$

In Exercises 35–40, determine whether the function is bounded above, bounded below, or bounded on its domain.

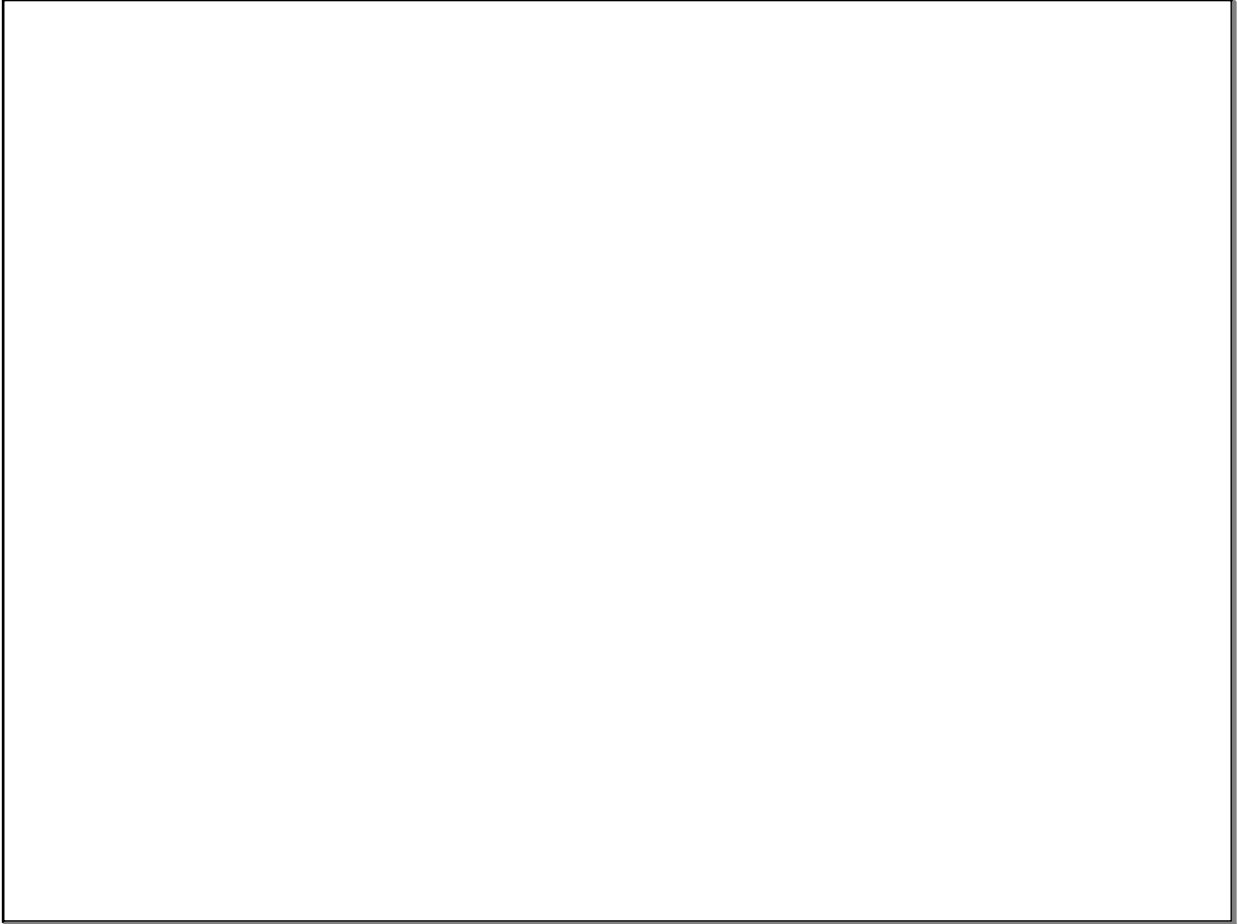
- 35. $y = 32$
- 36. $y = 2 - x^2$
- 37. $y = 2^x$
- 38. $y = 2^{-x}$
- 39. $y = \sqrt{1 - x^2}$
- 40. $y = x - x^3$

ALL

EVEN

EVEN

Sep 14-1:22 PM



Sep 14-1:22 PM