Questions on Lesson 5.4?
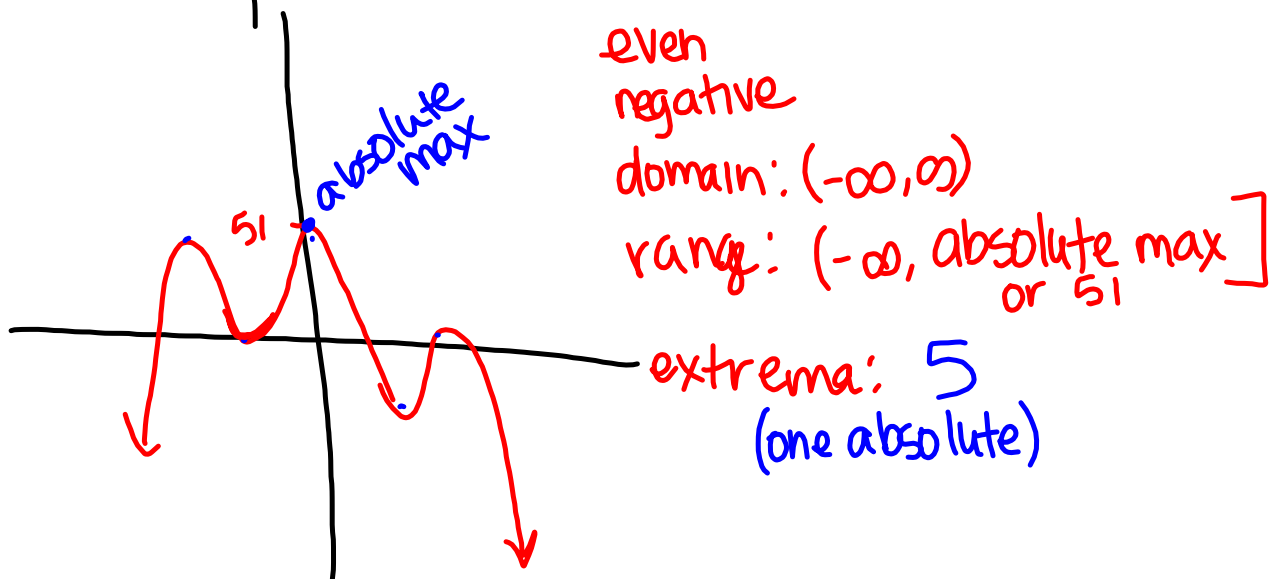
We will be taking our content mastery quiz in

a few minutes!

3 questions on quiz today

* page 376-377

ODD
POSITIVE
D&R: $(-\infty, \infty)$
extrema: 4
all relative

even
negative
domain: $(-\infty, \infty)$
range: $(-\infty, \text{absolute max}]$
or 51
extrema: 5
(one absolute)

absolute max
51

Feb 27-8:47 AM

Content Mastery Quiz 5.4

Be sure to show any work
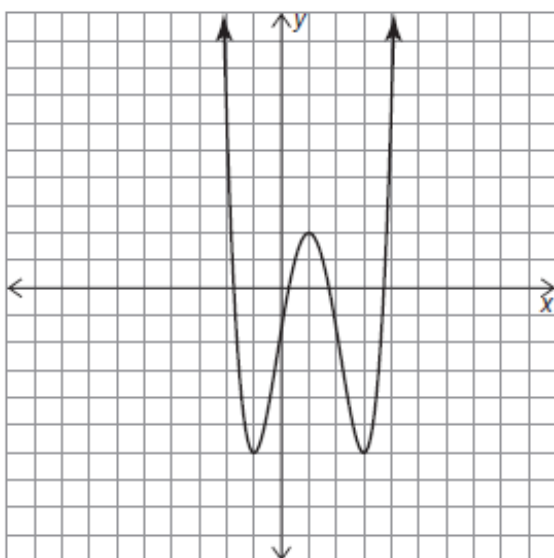
1) Is this an even or odd function?

2) How many extrema does this graph have?

3) What is the end behavior?

As $x \to \infty$, $f(x) \to$

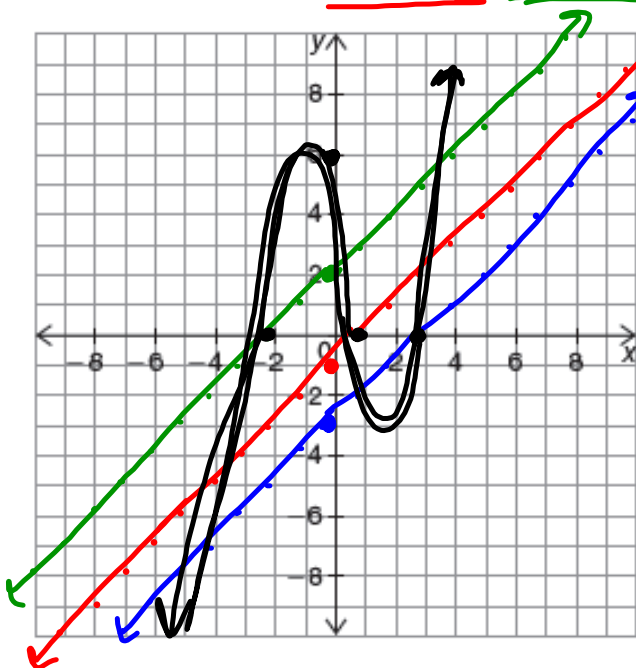As $x \to -\infty$, $f(x) \to$

Nov 3-9:03 AM

That Graph Looks a Little Sketchy

5.5

Building Cubic and Quartic Functions

Lesson 5.5 begins on pg.385 in your book, but what's below is not in your book.

Consider the functions $k(x) = x - 1$, $m(x) = x + 2$, $n(x) = x - 3$, and $f(x) = k(x) \cdot m(x) \cdot n(x)$.

a. Graph $k(x)$, $m(x)$, and $n(x)$.

b. Determine the degree of the function $f(x)$. Explain your reasoning.

$$f(x) = (x-1)(x+2)(x-3) \quad \text{3rd degree}$$
$$f(x) = x^3 - 2x^2 - 5x + 6$$

c. Determine the zeros of $f(x)$. Explain your reasoning.

$$0 = (x-1)(x+2)(x-3)$$
$$x = 1, -2, 3$$

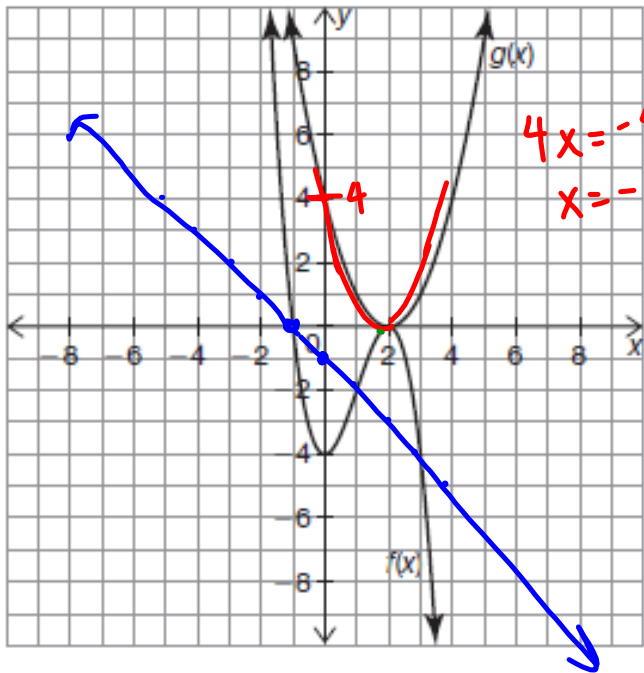d. Determine the y-intercept of $f(x)$. Explain your reasoning.

$$y = 6$$

e. Determine the intervals over which the value of $f(x)$ is positive. Determine the intervals over which the value of $f(x)$ is negative. Explain your reasoning.

$$(-2, 1) \ \& \ (3, \infty)$$

f. Sketch $f(x)$.

Oct 9-8:12 AM

This is also not in your book.

Consider the graphs of the quadratic function $g(x) = (x - 2)^2$ and the cubic function $f(x) = g(x) \cdot h(x)$.

a. Determine the degree of the function $h(x)$.

   Explain your reasoning.

   $4x = -4$

   $x = -1$

   linear

b. Determine the x-intercept(s) of $h(x)$.

   Explain your reasoning.

   $x = -1$

c. Determine the y-intercept of $h(x)$.

   Explain your reasoning.

   $y = -1$

d. Determine the equation of the function $h(x)$. Explain your reasoning.

   $y = -x - 1$

IN BOOK:

  7 on p. 391
        p 392
  2 on p. 398

<p style="text-align:center; color:blue;">This is not in your book.</p>

3. Determine 2 linear functions and 1 quadratic function such that the product of the 3 functions will build a quartic function with a double root at -1 and a y-intercept at $(0, -3)$. Write the equation of the quartic function. Explain your reasoning.

4. Determine 2 quadratic functions such that the product of the 2 functions will build a quartic function with only 2 x-intercepts at $(-2, 0)$ and $(1, 0)$ and a y-intercept at $(0, -8)$. Write the equation of the quartic function. Explain your reasoning.

Classwork/Homework
Work on Lesson 5.5 in your book
for the remainder of class.

Oct 21-8:47 AM