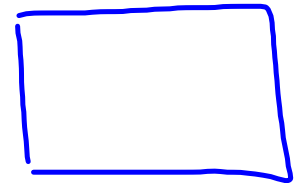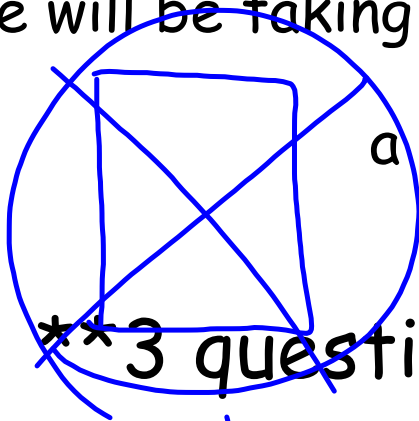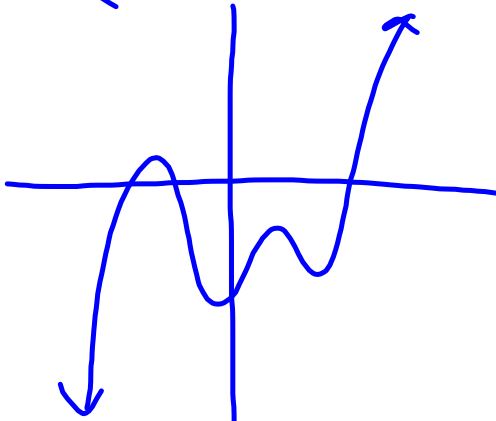# Questions on Lesson 5.4?

We will be taking our content mastery quiz in

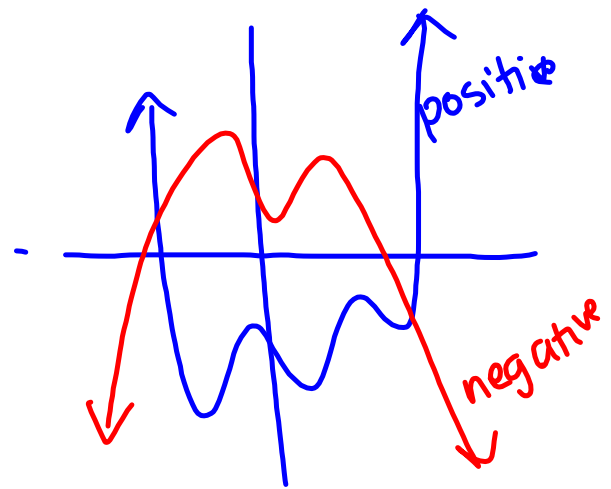a few minutes!

3 questions on quiz today

Positive a odd function
As $X \to \infty, f(x) \to \infty$
As $x \to -\infty, f(x) = -\infty$

a is
^Negative odd function
As $x \to \infty, f(x) \to -\infty$
As $x \to -\infty, f(x) \to \infty$
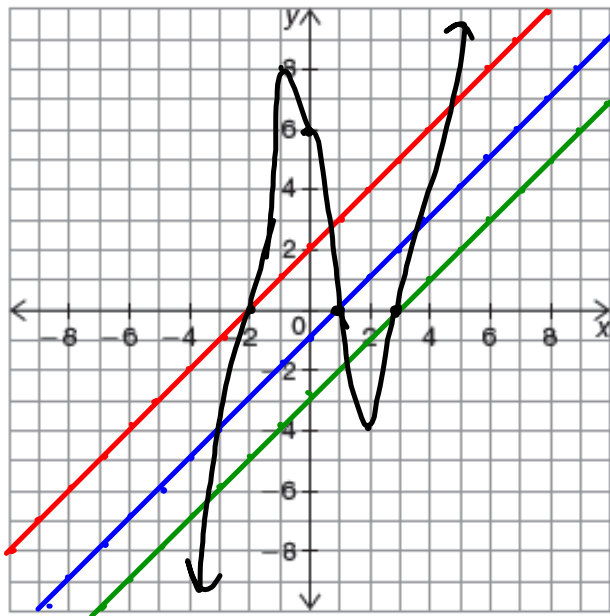
positive

negative

Feb 27-8:47 AM

1

5.5

That Graph Looks a Little Sketchy
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 $f(x) = k(x) \cdot m(x) \cdot n(x)$.

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

$f(x) = x^3 - 2x^2 - 5x + 6$

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

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

　　Explain your reasoning.

　　3, 3ʳᵈ power, 3 x-int.

c. Determine the zeros of $f(x)$.

　　Explain your reasoning.

　　$x = -2, 1, 3$

　　$(-2,0), (1,0), (3,0)$

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

　　Explain your reasoning.

　　y-int: 6

　　$(0,6)$

　　$\begin{array}{l} x-1 \\ x+2 \\ x-3 \end{array}$ multiply these!

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.
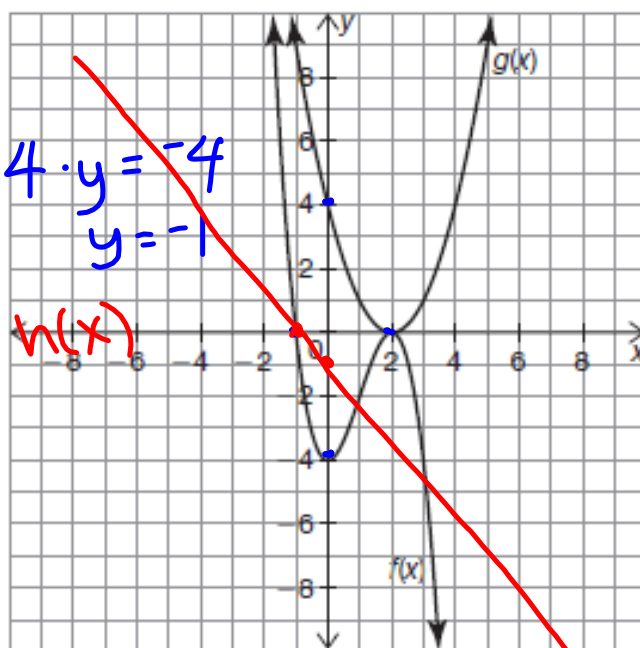
　　+ bet $(-2,1)$ & $(3,\infty)$

　　− bet. $(-\infty,-2)$ & $(1,3)$

f. Sketch $f(x)$.

This is also not in your book.

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

$f(x)$ is 3rd deg.

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

Explain your reasoning.

linear

$x^2 \cdot x^1 = x^3$

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

Explain your reasoning.

−1 because that's the x-int from $f(x)$ that isn't $g(x)$.

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

Explain your reasoning.

−1 . . .

4 · y = −4

y = −1

h(x)

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

$h(x) = -x - 1$

Oct 29-9:00 AM

This is not in your book.

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.

Oct 9-8:14 AM

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

in book — pages 391 #7

392

398 #2

} Hansen's recommendations for HW.