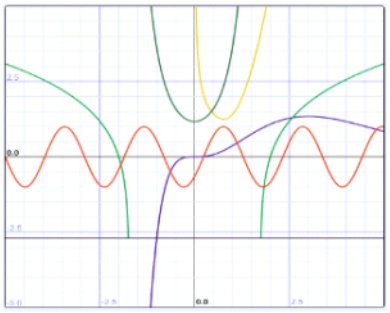
Lesson 11 Test Review

Date:

Chapter 4: Linear and Quadratic Functions:



Lesson 11 :

Review for Test

Find the rule of each of the following quadratic functions

1.

X	Y
5	11
6	5
7	3
8	5

2.

X	Y
-4	0
-3	12
-2	18
0	12
1	0

3.

X	Y
0	5.5
1	3
2	1.5
3	1
4	1.5
5	3
6	5.5

justify the vertex

Be careful * do not assume a vertex too quickly

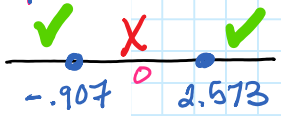
Determine the solution set of the following inequalities

1. $3x^2 - 5x + 7 \geq 14$
2. $2x(x-3) < 20$
3. $-3x(x+4) + 7 \geq 16$

1) $3x^2 - 5x + 7 - 14 = 0$

$3x^2 - 5x - 7 = 0$

$x_1 = -.907 \quad x_2 = 2.573$



test 0 $3(0)^2 - 5(0) + 7 \geq 14$

$0 - 0 + 7 \geq 14$

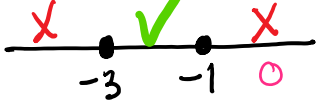
$7 \geq 14$ FALSE X

$x \in (-\infty, -.907] \cup [2.573, \infty)$

3) $-3x^2 - 12x + 7 - 16 = 0$

$-3x^2 - 12x - 9 = 0$

$x_1 = -3 \quad x_2 = -1$



test 0

2) $2x^2 - 6x - 20 = 0$

$x^2 - 3x - 10 = 0$

$(x-5)(x+2) = 0$

$x - 5 = 0 \quad | \quad x + 2 = 0$

$x = 5 \quad x = -2$

test 0

$-3(0)(0+4)+7 \geq 16$

$0+7 \geq 16$

False $7 \geq 16$ X

$x \in [-3, -1]$

$(x-5)(x+2) \leq 0$

$x-5=0$ | $x+2=0$

$x_1=5$ | $x_2=-2$

X ✓ X

-2 0 5

test 0

$2(0)(0-3) < 20$

✓ $0 < 20$ TRUE

$x \in]-2, 5[$

Do studies of the following functions

(domain, range, interval of in/decrease, zeros, y intercept, etc)

$g(x) = (3x-12)(-x+6)$

domain : $\mathbb{R}$

range : $]-\infty, 3]$

zeros : $\{4, 6\}$

y-int : -72

variation : ↗ $]-\infty, 5]$

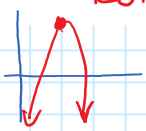
↘ $[5, -\infty$

positive : $[4, 6]$

negative : $]-\infty, 4] \cup [6, \infty$

extrema : max 3

WORKSHOP



$g(x) = (3x-12)(-x+6)$

$= 3(x-4)(-1)(x-6)$

$= -3(x-4)(x-6)$

$h = \frac{4+6}{2} = \frac{10}{2} = 5$

$k = (3(5)-12)(-(5)+6)$

$= (15-12)(1)$

$= 3$

$g(x) = -3(x-5)^2+3$

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

domain : $\mathbb{R}$

range : $]-\infty, 3]$

zeros : $\{0, 2\}$

y-int : 0

variation ↗ $]-\infty, 1]$

↘ $[1, \infty$

positive : $[0, 2]$

negative $]-\infty, 0] \cup [2, \infty$

extrema : max 3

WORKSHOP

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

$= -3(x-0)(x-2)$

$h = \frac{0+2}{2} = 1$

$k = -3(1)^2+6(1) = 3$

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

y-int = 0

$g(x) = -3(x-5)^2+3$

$y\text{-int} = (-3)(-4)(-6)$