Name: Answer Key Period: ____

Unit 8 Day 7 Notes: Comparing Functions

F-IF.9: I can compare functions shown in two different ways.

Linear Function **f(x)**

Graph:

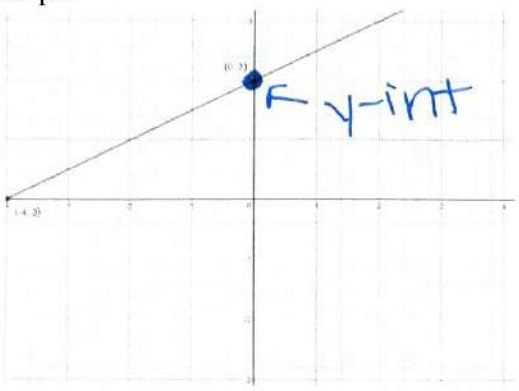


Table:

x	y
0	2
1	2.5
2	3
3	3.5
4	4
5	4.5
6	5 ← max

y-intercept: (0, 2)

Quadratic Function **g(x)**

Graph:

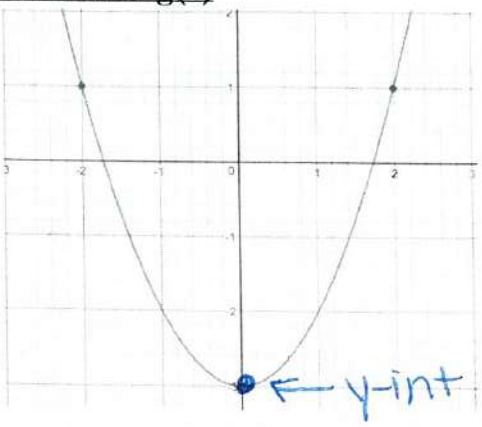


Table:

x	y
0	-3
1	-2
2	1
3	6
4	13
5	22
6	33 ← max

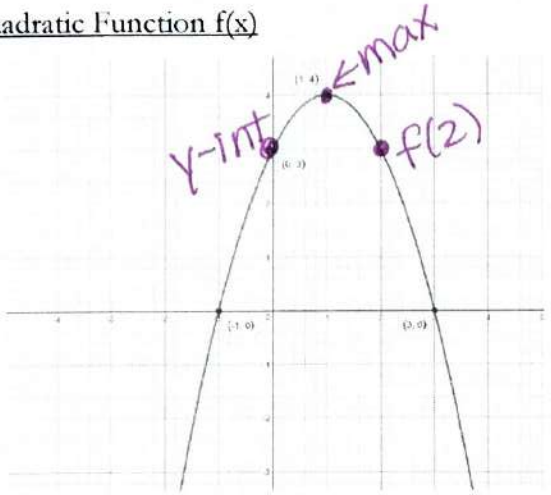
y-intercept: (0, -3)

For each comparison below select a symbol *< or > or =* that correctly indicates the relationship between the first and the second quantity.

First Quantity (linear)	**Comparison *< or > or =***	**Second Quantity (quadratic)**
The *y*-coordinate of the *y*-intercept $f(x)$ 2	>	The *y*-coordinate of the *y*-intercept $g(x)$ −3
$f(4) = 4$	<	$g(4) = 13$
Maximum value of $f(x)$ on the interval $0 \le x \le 6$ 5	<	Maximum value of $g(x)$ on the interval $0 \le x \le 6$ 33

2. Selected values of a quadratic function $f(x)$ is shown below. The equation of a linear function $g(x)$ is given.

Quadratic Function f(x)



Linear Function g(x)

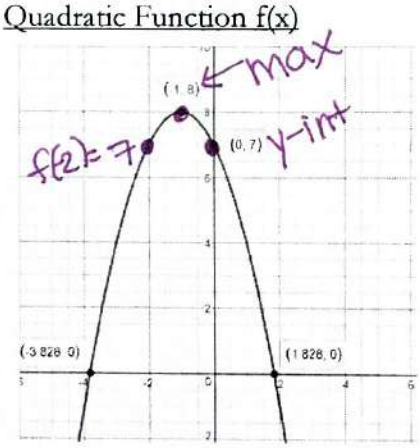
x	y
-5	15 ← max
-4	13
-3	11
-2	9
-1	7
0	5 y-int
1	3
2	1 g(2)
3	-1
4	-3
5	-5

For each comparison below select a symbol $<$ *or* $>$ *or* $=$ that correctly indicates the relationship between the first and the second quantity.

First Quantity (quadratic)	Comparison $<$ *or* $>$ *or* $=$	Second Quantity (linear)
The y-coordinate of the y-intercept $f(x)$ 3	<	The y-coordinate of the y-intercept $g(x)$ 5
$f(2)$ 3	>	$g(2)$ 1
Maximum value of $f(x)$ on the interval $-5 \le x \le 5$ 4	<	Maximum value of $g(x)$ on the interval $-5 \le x \le 5$ 15

3. Selected values of a quadratic function $f(x)$ is shown below. The equation of a linear function $g(x)$ is given.

Quadratic Function f(x)



Linear Function g(x)

x	y
-5	-17
-4	-14
-3	-11
-2	-8 g(-2)
-1	-5
0	-2 y-int
1	1
2	4
3	7
4	10
5	13 ← max

First Quantity (quadratic)	Comparison $<$ *or* $>$ *or* $=$	Second Quantity (linear)
The y-coordinate of the y-intercept $f(x)$ 7	>	The y-coordinate of the y-intercept $g(x)$ -2
$f(-2)$ 7	>	$g(-2)$ -8
Maximum value of $f(x)$ on the interval 8 $-5 \le x \le 5$	<	Maximum value of $g(x)$ on the interval 13 $-5 \le x \le 5$

*use "Graph" on calculator to find max or min

4. Use the information to decide which quadratic function has the **largest maximum.**

Equation A $y= -2x^2+4$

(0,4)

Equation B $y= -x^2+2$

(0,2)

5. Use the information to decide which quadratic function has the **smallest minimum**

Function 1: $y = x^2 - 2x - 5$

(1,-6)

Function 2: $y = (x-2)^2 - 3$

(2,-3)

6. Use the information to decide which quadratic function has the **smallest maximum**

Function 1: $y = -x^2 - 2x + 5$

(-1,6)

Function 2: $y = -(x-2)^2 - 3$

(2,-3)