

HW 0.2

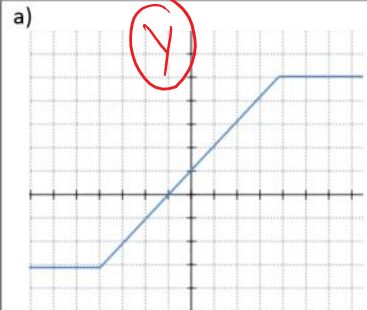
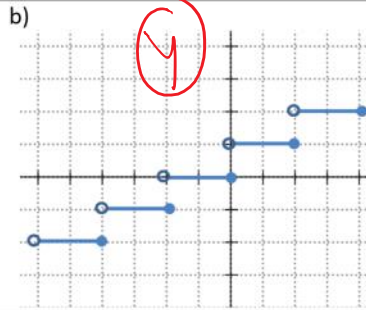


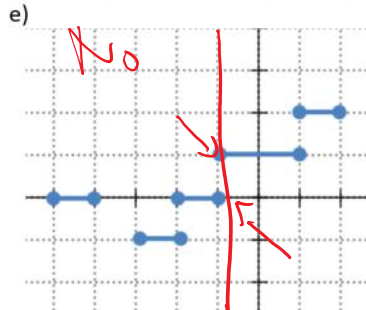
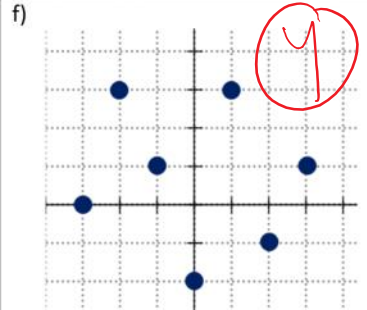
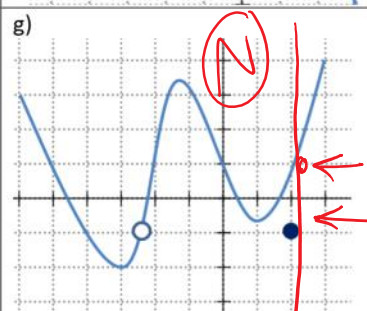
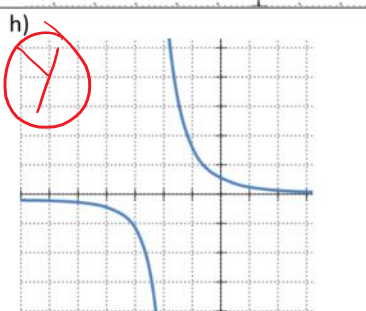
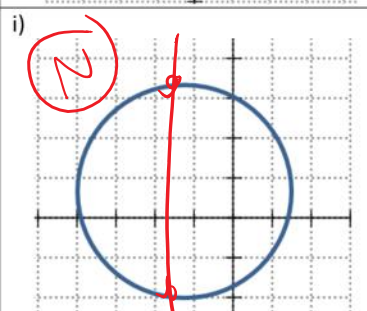
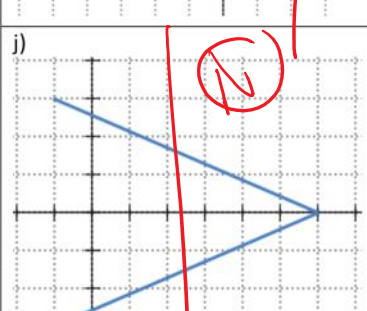
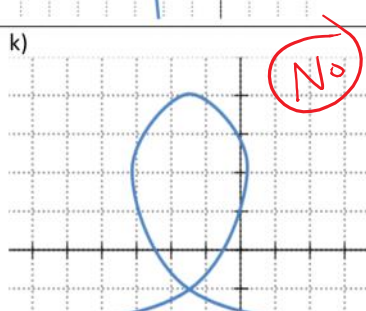
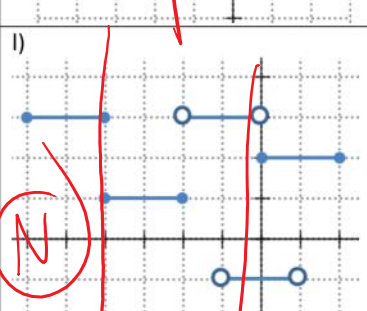
September 23, 2016 9:13 PM

Name: Key

Date: _____

Math 10 Enriched: HW 0.2 Introduction to Non Linear Functions

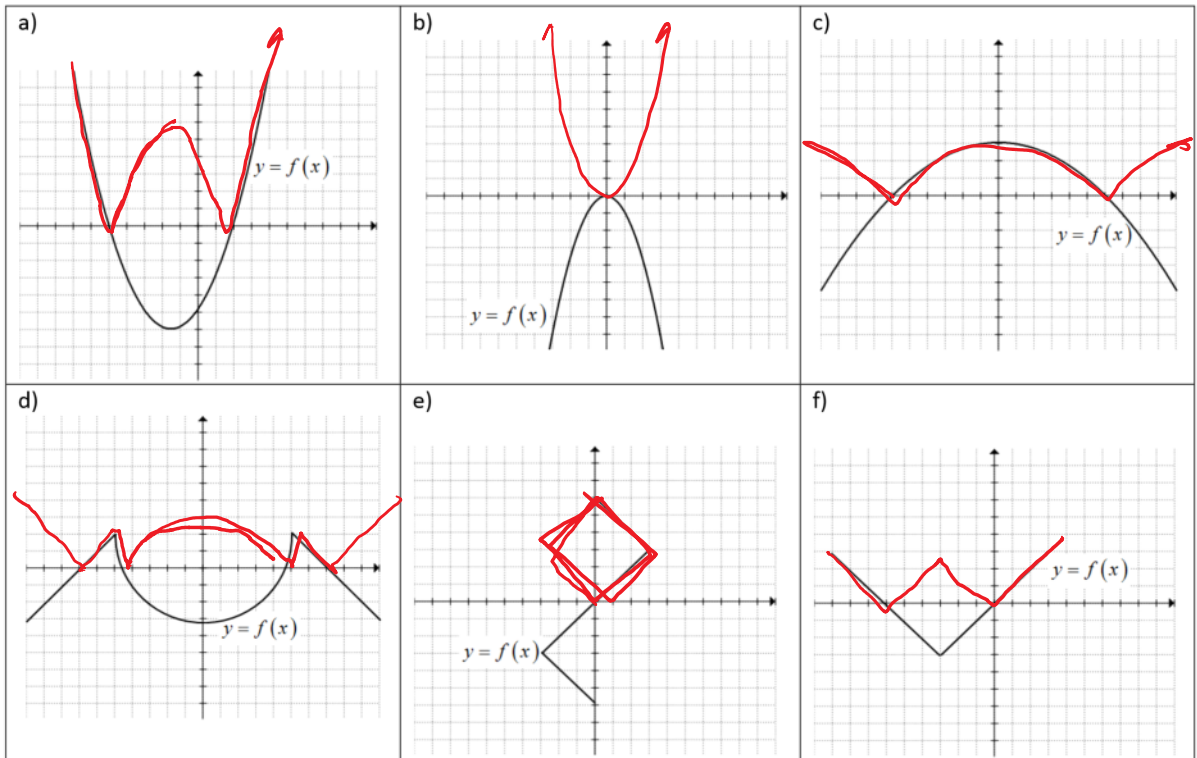
1. Indicate which of the following graphs are functions.

a) 	b) 	c) 
d) 	e) 	f) 
g) 	h) 	i) 
j) 	k) 	l) 

2. Use the space provided to make a table of values of each function and then graph it on the grid provided.

<p>Function</p> $y = x^2 - 3$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50px;">x</th> <th style="width: 50px;">y</th> </tr> </thead> <tbody> <tr><td>-3</td><td></td></tr> <tr><td>-2</td><td></td></tr> <tr><td>-1</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> </tbody> </table>	x	y	-3		-2		-1		0		1		2			<p>Function</p> $y = \sqrt{x+3}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50px;">x</th> <th style="width: 50px;">y</th> </tr> </thead> <tbody> <tr><td>-4</td><td></td></tr> <tr><td>-3</td><td></td></tr> <tr><td>-2</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>6</td><td></td></tr> </tbody> </table>	x	y	-4		-3		-2		0		1		6		
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<p>Function</p> $y = 2x+3 $ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50px;">x</th> <th style="width: 50px;">y</th> </tr> </thead> <tbody> <tr><td>-3</td><td></td></tr> <tr><td>-2</td><td></td></tr> <tr><td>-1</td><td></td></tr> <tr><td>0</td><td></td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td></td></tr> </tbody> </table>	x	y	-3		-2		-1		0		1		2			<p>Function</p> $y = (x-3)^2$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50px;">x</th> <th style="width: 50px;">y</th> </tr> </thead> <tbody> <tr><td>0</td><td></td></tr> <tr><td>2</td><td></td></tr> <tr><td>3</td><td></td></tr> <tr><td>4</td><td></td></tr> <tr><td>5</td><td></td></tr> <tr><td>7</td><td></td></tr> </tbody> </table>	x	y	0		2		3		4		5		7		
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<p>Function</p> $y = \sqrt{2x+5} - 3$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50px;">x</th> <th style="width: 50px;">y</th> </tr> </thead> <tbody> <tr><td>-2.5</td><td>3</td></tr> <tr><td>-2</td><td>-2</td></tr> <tr><td>-0.5</td><td>-1</td></tr> <tr><td>1</td><td></td></tr> <tr><td>2</td><td>0</td></tr> <tr><td>5.5</td><td>1</td></tr> </tbody> </table>	x	y	-2.5	3	-2	-2	-0.5	-1	1		2	0	5.5	1		<p>Function</p> $y = -3x+2 - 3$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50px;">x</th> <th style="width: 50px;">y</th> </tr> </thead> <tbody> <tr><td>-3</td><td></td></tr> <tr><td>-2</td><td>5</td></tr> <tr><td>-1</td><td>2</td></tr> <tr><td>0</td><td>-1</td></tr> <tr><td>1</td><td>-2</td></tr> <tr><td>4</td><td>7</td></tr> </tbody> </table>	x	y	-3		-2	5	-1	2	0	-1	1	-2	4	7	
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3. Graph $y = |f(x)|$ for each function on the same grid:

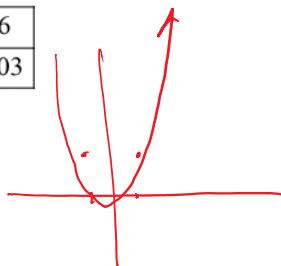


4. Given each table of values, indicate whether it is a "Quadratic", "Root", "Absolute" or Linear Function. Explain and justify your choice of answer.

a)

x	-2	2	4	5	6
y	7	7	43	70	103

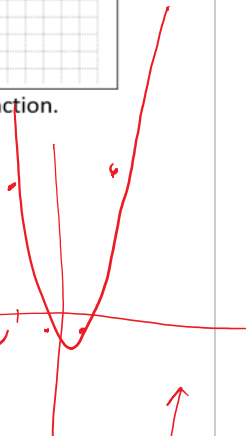
QUADRATIC



e)

x	-3	-1	1	4	6
y	14	-2	-2	28	68

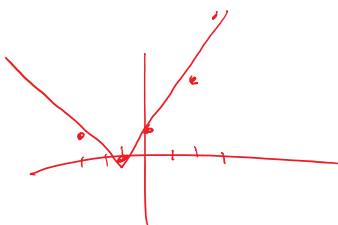
QUADRATIC



b)

x	-3	-1	0	2	3
y	2	0	2	6	8

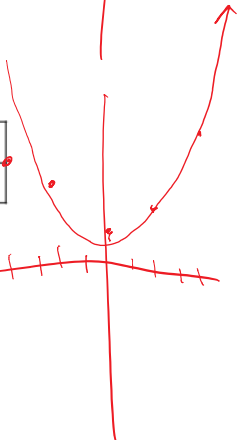
absolute function



f)

x	-4	-2	0	2	5
y	14	8	2	4	13

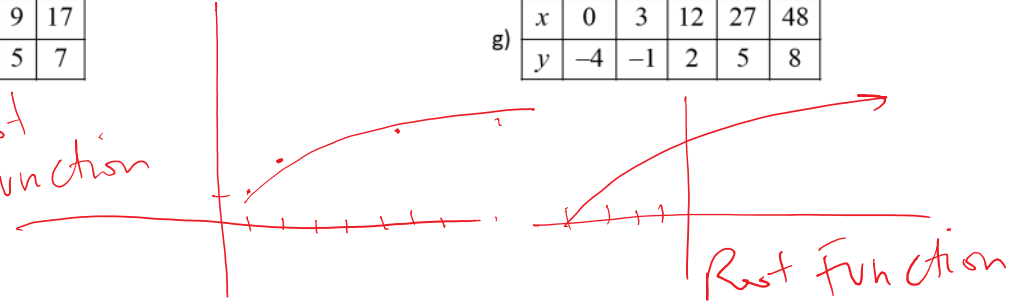
QUADRATIC



x	1	2	6	9	17
y	1	2	4	5	7

x	0	3	12	27	48
y	-4	-1	2	5	8

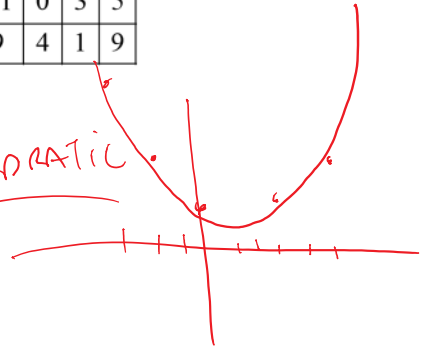
Root Function



x	-3	-1	0	3	5
y	25	9	4	1	9

x	-4	-2	-1	3	4
y	31	7	1	17	31

QUADRATIC



QUADRATIC

5. Given the table of values for $y = f(x)$, find the following values:

x	f(x)
-3	-2
-2	-12
-1	5
0	11
1	13
2	15
3	0
4	-3

i) $|f(0)|$
= 11

ii) $f^{-1}(-2)$
= -3

iii) $f^{-1}(5)$
= -1

iv) $|f(2)|$
= 15

v) $|f(-2)|$
= $|-12| = 12$

vi) $|f(4)|$
= $|-3| = 3$

vii) $f^{-1}(-3)$
= 4

viii) $|f^{-1}(-3)|$
= 4

ix) $|f^{-1}(-12)|$
= $|-2| = 2$

$$\text{x) } f^{-1}(f(4)) \\ = 4$$

$$\text{xi) } f^{-1}(f(x)) \\ = x$$

$$\text{xii) } f(f^{-1}(x)) \\ = x.$$

6. Given the graph of $y = f(x)$, find the following values:

	a) $f(2)$ $= 0$	b) $f(-3)$ $= -2$	c) $ f(-3.2) $ $= 2$	
	d) $ f(4) $ $= 3$	e) $f^{-1}(-1)$ $= -2.5$	f) $f^{-1}(4)$ $= 0$	
	g) $f^{-1}(0)$ $= \pm 2$	h) $f^{-1}(-2)$ $= \{-4, -3\}$	i) $ f^{-1}(-2) $ $\{3, 4\}$	