M10C Lin Eqs & Graphs C1 – Linear Relations **Name:** KEY

Linear or Non-Linear Assignment

In each of the problems you will be given a relation as an equation or a table of values. First, you must try to decide if the given relation is linear or non-linear and then complete the missing parts of the table.

Problem #1

Equation: $y = 2x$

Domain: $\{x \mid -2 \le x \le 2, x \in R\}$

Range: $\{y \mid -4 \le y \le 4, y \in R\}$

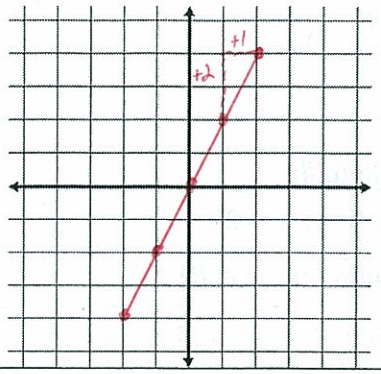
Linear or **Non-Linear** (Circle One)

Slope: (If linear) $m = \frac{2}{1} = 2$

Table of Values

x	y
-2	-4
-1	-2
0	0
1	2
2	4

Graph



Problem #2

Equation: $y = x^2$

Domain: $\{x \mid -2 \le x \le 2, x \in R\}$

Range: $\{y \mid 0 \le y \le 4, y \in R\}$

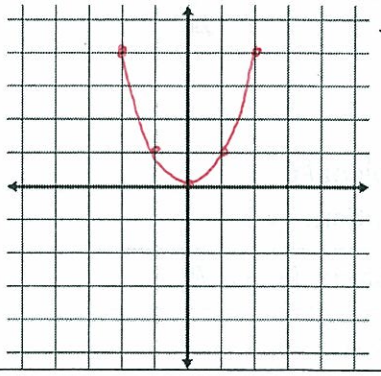
Linear or Non-Linear (Circle One)

Slope: (If linear) N/A

Table of Values

x	y
-2	4
-1	1
0	0
1	1
2	4

Graph



Problem #3

Equation: $y = \sqrt{x}$

Domain: $\{x \mid x \ge 0, x \in R\}$

Range: $\{y \mid y \ge 0, y \in R\}$

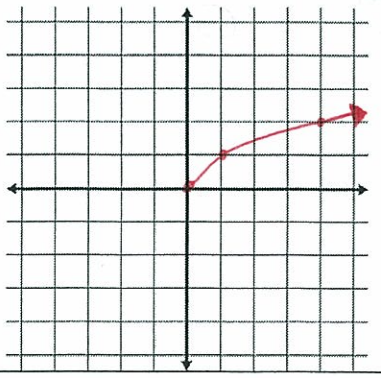
Linear or Non-Linear (Circle One)

Slope: (If linear) N/A

Table of Values

x	y
0	0
1	1
2	$\sqrt{2}$
3	$\sqrt{3}$
4	2

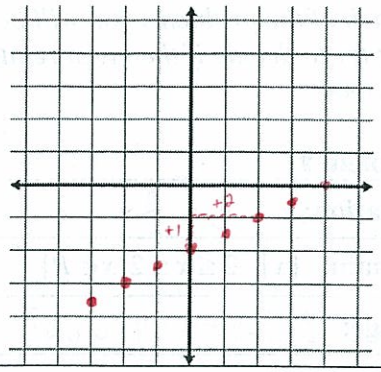
Graph



Problem #4

	Table of Values	Graph
Equation: $y = \frac{1}{2}x - 2$		
Domain: $\{-3, -2, -1, 0, 1, 2, 3\}$		
Range: $\{-3.5, -3, -2.5, -2, -1.5, -1, -0.5\}$		
Linear or **Non-Linear** (Circle One)		
Slope: (If linear) $m = \frac{1}{2}$		

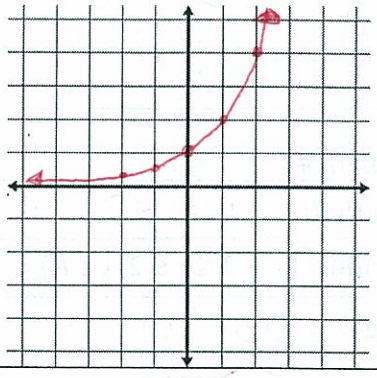
x	y
-3	-3.5
-2	-3
-1	-2.5
0	-2
1	-1.5
2	-1
3	-0.5



Problem #5

	Table of Values	Graph
Equation: $y = 2^x$		
Domain: $\{x \mid x \in R\}$		
Range: $\{y \mid y > 0, y \in R\}$		
Linear or Non-Linear (Circle One)		
Slope: (If linear) N/A		

x	y
-2	$2^{-2} = \frac{1}{4}$
-1	$2^{-1} = \frac{1}{2}$
0	$2^0 = 1$
1	$2^1 = 2$
2	$2^2 = 4$
3	$2^3 = 8$



Problem #6

	Table of Values	Graph
Equation: $y = 3$		
Domain: $\{x \mid x \in R\}$		
Range: $\{y \mid y = 3\}$		
Linear or **Non-Linear** (Circle One)		
Slope: (If linear) $m = 0$		

x	y
-2	3
-1	3
0	3
1	3
2	3
3	3