NAME _____

Lesson 4.3 Functions and Linear Relationships

Data in tables can be used to create equations. If the table of values represents a function, a linear relationship in the form of $y = mx + b$ exists.

x	y
99	9
72	6
54	4
27	1

Step 1: Find the rate of change by calculating the slope, or rate of change, between the two variables. $\frac{y_2 - y_1}{x_2 - x_1}$

$$\frac{9 - 1}{99 - 27} = \frac{8}{72} = \frac{1}{9}$$

Step 2: Substitute known values of x and y with the slope into the formula $y = mx + b$.

$$9 = \left(\frac{1}{9}\right)(99) + b$$
$$9 = \left(\frac{1}{9}\right)(99) + b$$
$$9 - 11 = 11 + b - 11$$
$$-2 = b$$

Step 3: Use the found values in the linear function to complete the table.

$$y = \left(\frac{1}{9}\right)(72) - 2$$
$$y = 8 - 2 = 6$$
$$y = \left(\frac{1}{9}\right)(54) - 2$$
$$y = 6 - 2 = 4$$

Find the relationship for each function table and then complete the table.

1.

a

x	y
12	
24	
84	7
120	10

Function: _____

b

x	y
2	
4	7
5	
11	14

Function: _____

2.

x	y
3	12
6	36
7	
9	

Function: _____

x	y
2	
4	50
5	60
10	

Function: _____

3.

x	y
2	19
3	26
5	
10	

Function: _____

x	y
8	
12	1
24	4
48	

Function: _____