NAME _____

Lesson 4.6 Initial Values of Linear Functions

Where a linear function crosses the *y*-axis is considered its initial value. One way to find the initial value of a linear function is to solve the equation for when the input, or *x*, equals 0. Use the formula $y = mx + b$, where *m* represents the rate of change and *b* represents the initial value of the linear function, to solve.

input	output
2	6
4	12
6	18

$\frac{18-6}{6-2} = \frac{12}{4} = 3$

$6 = (3)(2) + b$

$6 - 6 = 6 - 6 + b$
$b = 0$

Step 1: Find the rate of change for the function table.

Step 2: Substitute values of *x*, *y*, and *m* in the linear equation.

Step 3: Solve for *b* to find the initial value of the function.

Find the initial value of each function.

a

1.

input	output
3	8
7	12
12	17

$b =$ _____

2.

input	output
2	2
5	14
7	22

$b =$ _____

3.

input	output
1	9
5	27
10	45

$b =$ _____

b

1.

input	output
27	3
54	6
90	10

$b =$ _____

2.

input	output
3	14
8	19
12	23

$b =$ _____

3.

input	output
1	10
2	12
3	14

$b =$ _____

c

1.

input	output
6	2
10	7
12	12

$b =$ _____

2.

input	output
8	0
10	–2
12	–4

$b =$ _____

3.

input	output
6	0
8	1
9	2

$b =$ _____