

## Functions 8.F.4 Pre-Test

Identify the rate of change, initial value, independent variable, and dependent variable. Then describe the rate of change and initial value in the context of each situation. Finally give the equation of the function unless the equation was already given.

1. The amount of money in dollars a person gets paid ( $p$ ) based on the number of Avon make-up packages he or she sells ( $a$ ) is modeled by the following function:  $p = 300a - 50$ .

Rate of Change: \_\_\_\_\_

Initial Value: \_\_\_\_\_

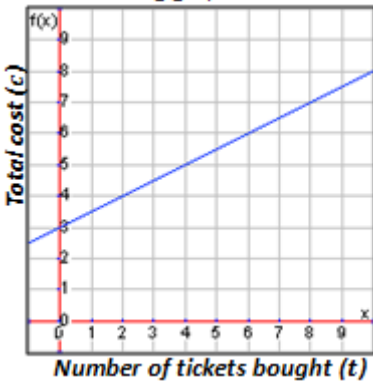
Independent Variable: \_\_\_\_\_

Dependent Variable: \_\_\_\_\_

Contextual Description of  
Rate of Change

Contextual Description of  
Initial Value

2. The function relating the cost in dollars of entering a carnival ( $c$ ) to how many tickets you buy ( $t$ ) is shown by the following graph:



Rate of Change: \_\_\_\_\_

Initial Value: \_\_\_\_\_

Independent Variable: \_\_\_\_\_

Dependent Variable: \_\_\_\_\_

Equation of the Function:

\_\_\_\_\_

Contextual  
Description of  
Rate of Change

Contextual  
Description of  
Initial Value

3. Kiley wants to go bowling for her 13<sup>th</sup> birthday party. The cost of the birthday party ( $c$ ) is based on the number of friends that Kiley invites ( $f$ ) as shown in the following table.

$f$	1	2	3	4	5	6	7	8	9	10
$c$	42	44	46	48	50	52	54	56	58	60

Rate of Change: \_\_\_\_\_

Initial Value: \_\_\_\_\_

Independent Variable: \_\_\_\_\_

Dependent Variable: \_\_\_\_\_

Contextual Description of  
Rate of Change

Contextual Description of  
Initial Value

Equation of the Function: \_\_\_\_\_

4. Imagine you're spending winter break visiting your relatives in New York. It costs \$300 for the plane ticket and \$100 per night for the hotel. Think of the function that demonstrates the cost ( $c$ ) based on the number of nights ( $n$ ) you spend.

Rate of Change: \_\_\_\_\_

Initial Value: \_\_\_\_\_

Independent Variable: \_\_\_\_\_

Dependent Variable: \_\_\_\_\_

Contextual Description of  
Rate of Change

Contextual Description of  
Initial Value

Equation of the Function: \_\_\_\_\_

## Functions 8.F.4 Pre-Test Answers

Identify the rate of change, initial value, independent variable, and dependent variable. Then describe what the rate of change and initial value mean in the context of each situation. Finally give the equation of the function unless the equation was already given.

1. The amount of money in dollars a person gets paid ( $p$ ) based on the number of Avon make-up packages he or she sells ( $a$ ) is modeled by the following function:  $p = 300a - 50$ .

Rate of Change:   300  

Initial Value:   50  

Independent Variable:    $a$   

Dependent Variable:    $p$   

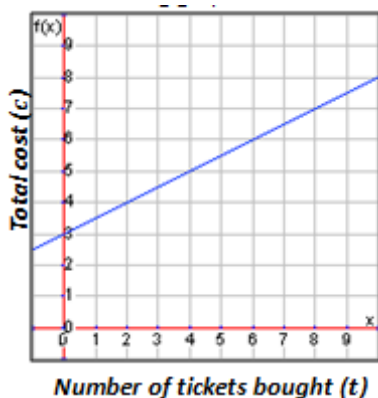
Contextual Description of  
Rate of Change

A person makes \$300 per  
make-up package sold.

Contextual Description of  
Initial Value

There is an initial fee of \$50  
before you can start selling  
make-up packages. Perhaps  
it's a membership fee.

2. The function relating the cost in dollars of entering a carnival ( $c$ ) to how many tickets you buy ( $t$ ) is shown by the following graph:



Rate of Change:    $\frac{1}{2}$   

Initial Value:   3  

Independent Variable:    $t$   

Dependent Variable:    $c$   

Equation of the Function:

   $c = \frac{1}{2}t + 3$   

Contextual  
Description of  
Rate of Change

It costs \$1 for 2  
tickets or \$0.50 per  
ticket.

Contextual  
Description of  
Initial Value

There is an initial  
fee of \$3, probably  
an entrance fee to  
the carnival.

3. Kiley wants to go bowling for her 13<sup>th</sup> birthday party. The cost of the birthday party ( $c$ ) is based on the number of friends that Kiley invites ( $f$ ) as shown in the following table.

$f$	1	2	3	4	5	6	7	8	9	10
$c$	42	44	46	48	50	52	54	56	58	60

Rate of Change:   2  

Initial Value:   40  

Independent Variable:    $f$   

Dependent Variable:    $c$   

Contextual Description of  
Rate of Change

It costs \$2 per person,  
maybe for the bowling  
shoes.

Contextual Description of  
Initial Value

It costs \$40 just to rent the  
bowling alley, no matter  
how many friends come.

Equation of the Function:    $c = 2f + 40$   

4. Imagine you're spending winter break visiting your relatives in New York. It costs \$300 for the plane ticket and \$100 per night for the hotel. Think of the function that demonstrates the cost ( $c$ ) based on the number of nights ( $n$ ) you spend.

Rate of Change:   100  

Initial Value:   300  

Independent Variable:    $n$   

Dependent Variable:    $c$   

Contextual Description of  
Rate of Change

It costs \$100 per night to  
rent the hotel room.

Contextual Description of  
Initial Value

The plane tickets cost \$300  
regardless of how many  
nights you stay at the hotel.

Equation of the Function:    $c = 100n + 300$