

KEY POINTS

Section 4.1

What is a Function?

- **Function Notation**
- **Independent and Dependent Variables**
- **Evaluating Functions**
- **Using Units to Interpret Functions**
- **Representing Functions Using Tables and Graphs**

Warm - Up

Section 4.1

What is a
Function?

$$-5(x + 9) - 8 \geq 32$$

Vocabulary

Section 4.1

What is a
Function?

Function Notation

Written as $f(x)$; This does not mean multiplication

When we use this notation x represents the input value and $f(x)$ represents the output value.

x -- is also known as the independent variable, this value occurs no matter what

$f(x)$ -- is also known as the dependent variable, and needs the value of x in order to occur

Discussion

Section 4.1

What is a
Function?

The values for x and $f(x)$ represent points in a plane.

There are various ways that we describe functions, we describe them in the following ways:

- words
- tables
- graphs
- formulas

Examples

WORDS: The population P of a town begins (in year $t=0$) at 5000 people and grows by 250 people every year.

TABLE:

t	0	1	2	3	4	5
P	5000	5250	5500	5750	6000	6250

FORMULA:

$$\text{Population} = \text{starting value} + \text{growth rate} * \# \text{ of years}$$

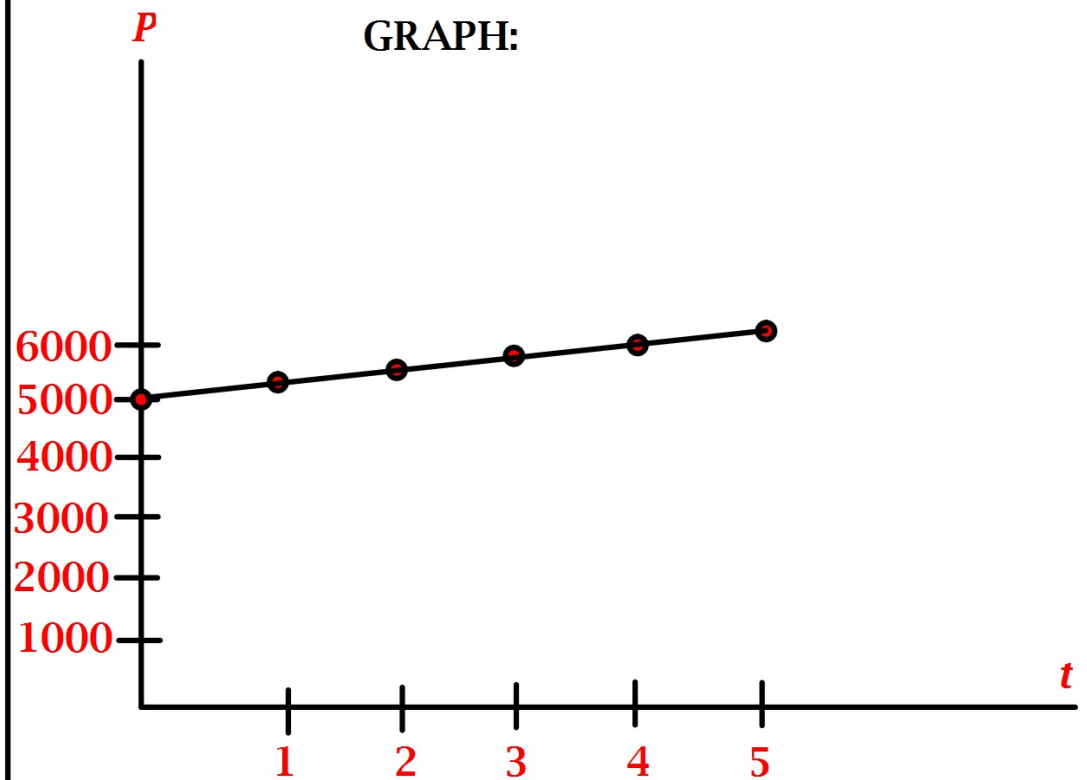
$$P = 5000 + 250t$$

Examples

Section 4.1

What is a
Function?

GRAPH:



Examples

Section 4.1

What is a
Function?

Write the first 3 columns shown in the table using function notation.

t	0	1	2	3	4	5
P	5000	5250	5500	5750	6000	6250

$$P(0) = 5000$$

$$P(1) =$$

$$P(2) =$$

$$P(3) =$$

Examples

Section 4.1

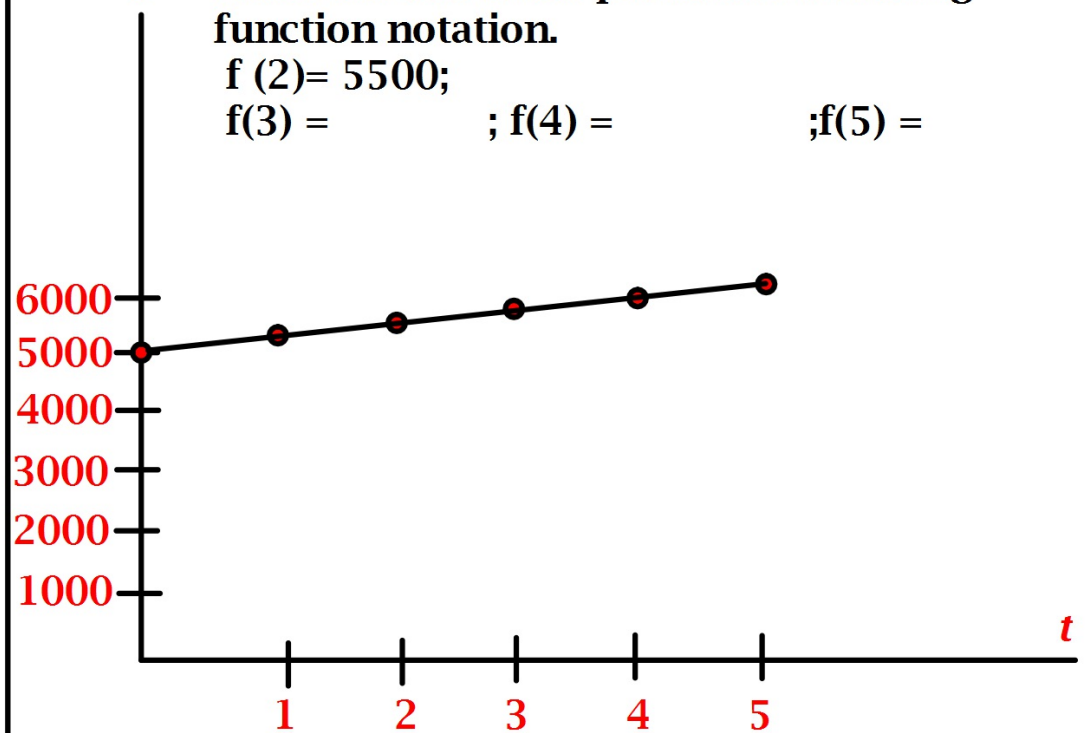
What is a
Function?

P

Write the last three points shown using
function notation.

$f(2) = 5500$;

$f(3) =$; $f(4) =$; $f(5) =$



Examples

Section 4.1

What is a
Function?

If $P(t) = 5000 + 250t$, answer the following:

a.) Evaluate $P(6)$

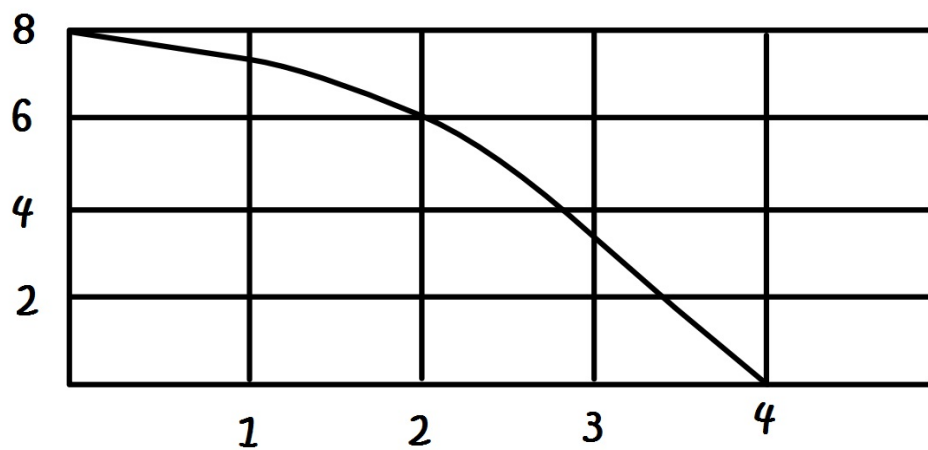
b.) Evaluate $P(2.5)$

c.) Given the $P(10) = 7500$, explain what the 10 represents and the 7500 represents.

d.) Interpret the meaning of the statement $P(10)=7500$

Examples

Section 4.1
What is a
Function?



a.) Evaluate $f(0)$:

b.) Evaluate $f(2)$:

c.) Solve $f(x) = 0$

d.) Solve $f(x) = 2$

Examples

Section 4.1

What is a
Function?

Let $f(x) = x^2$. Evaluate and simplify the following.

a. $f(-3)$

b. $f(2h)$

c. $f(x+1)$

d. $f(x+1) - f(-3)$

Homework

Pages 83

#1-25 all, 32

