

NOTES: LESSON 4.3 – WRITING EQUATIONS OF A LINE AS $y = mx + b$

Learning Goal: I can write an equation in the form $y = mx + b$ to represent a linear relationship.

Meta de Aprendizaje: Puedo escribir una ecuación in la forma $y = mx + b$ para representar una relacion lineal.

Language Goal: I can read a word problem and write an equation in the form of $y = mx + b$ to represent a linear relationship.

Lenguaje Objetivo: Puedo leer un problema de aplicación y escribir una ecuación in la forma $y = mx + b$ para representar una relacion lineal.

$$y = mx + b$$

WORD PROBLEMS

HINTS FOR SLOPE

- Rate of Change
- Unit Rate
- Per, Each, Every
- The value that repeats, so we can multiply it.

per
each
every
in
an
a

HINTS FOR Y-INTERCEPT

- “b” for beginning
- The starting point
- The “initial” value
- The “original” value
- A “service charge”
- A “one-time fee”
- The value that **does not** repeat.

A candle was **originally 7 inches** tall.

A plumber charges **\$50 an hour** plus a **service charge of \$25**.

A cable company charges **\$30 per month** plus a **one-time connection fee of \$75**.

EXAMPLE 1

Frankie bought a new computer. He made an initial payment of \$50 to the store, and he will pay \$30 each month until the computer is paid off. Which equation represents the relationship between m , the number of monthly payments Frankie has made, and t , the total amount that Frankie has paid the store?

F $t = 50m + 30$

SLOPE: $m =$ _____

G $t = 30m - 50$

Y-INTERCEPT: $b =$ _____

H $t = 50m - 30$

J $t = 30m + 50$

EQUATION: $y =$

EXAMPLE 2

Ramona is walking 10,000 feet for a fund-raiser. She walks at a rate of 270 feet per minute. Write an equation where d represents the remaining number of feet Ramona has to walk and t represents the number of minutes she has already walked.

SLOPE: $m =$ _____

Y-INTERCEPT: $b =$ _____

EQUATION: $y =$

GRAPHS

EXAMPLE 1

The graph of a linear function is shown below. What is the equation for the linear function?

SLOPE:

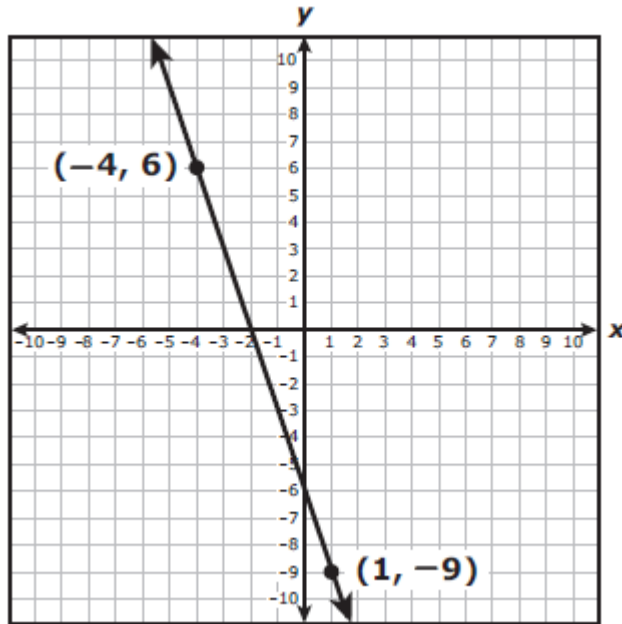
$m =$ _____

Y-INTERCEPT:

$b =$ _____

EQUATION:

$y =$



EXAMPLE 2

What equation best represents the relationship between x , the age of the machine in years and y , the value of the machine in dollars?

SLOPE:

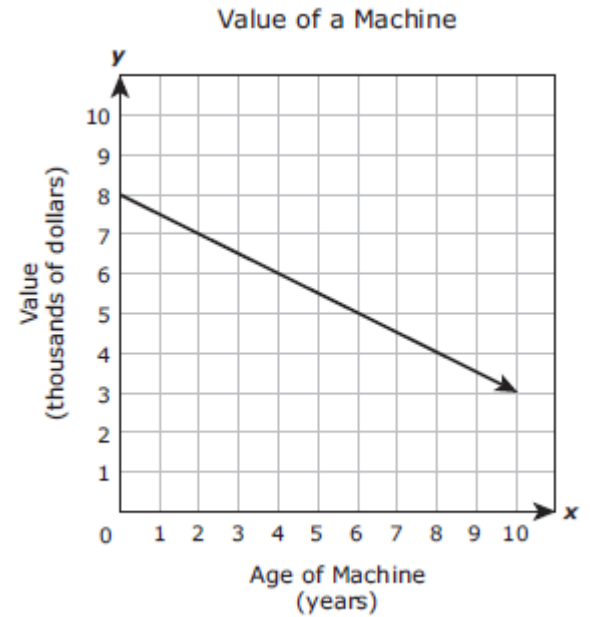
$m =$ _____

Y-INTERCEPT:

$b =$ _____

EQUATION:

$y =$



TABLES

EXAMPLE 1

What equation describes the relationship between x and y in the table?

x	y
0	5
6	7
12	9
15	10

SLOPE:

$m =$ _____ $=$

Y-INTERCEPT: $b =$ _____

EQUATION: $y =$

EXAMPLE 2

What equation describes the relationship between the function represented in the table?

x	1	3	5	7
y	-6	-18	-30	-42

SLOPE:

$m =$ _____ $=$

Y-INTERCEPT: $b =$ _____

EQUATION: $y =$

Calculator Trick!

To Insert the Table:

Press

To Calculate the Line:

Press