

SCENARIO #1 - TOWING SERVICE

Problem Situation

Your parents buy you a used car for your 16th birthday. Unfortunately, it breaks down on the way to school. You call a towing service to pick up the car. When the tow truck driver arrives, he informs you the cost of the service is \$10 plus \$1 per mile that the car needs to be towed.

How does the total cost of the towing service depend on the number of miles the car is towed?

Write a Linear Equation

Define your variables:

Slope/Rate of Change: \$1/mile

Starting Point/Y-intercept: \$10

Write the equation using function notation.

$$F(d) = 1d + 10$$

or

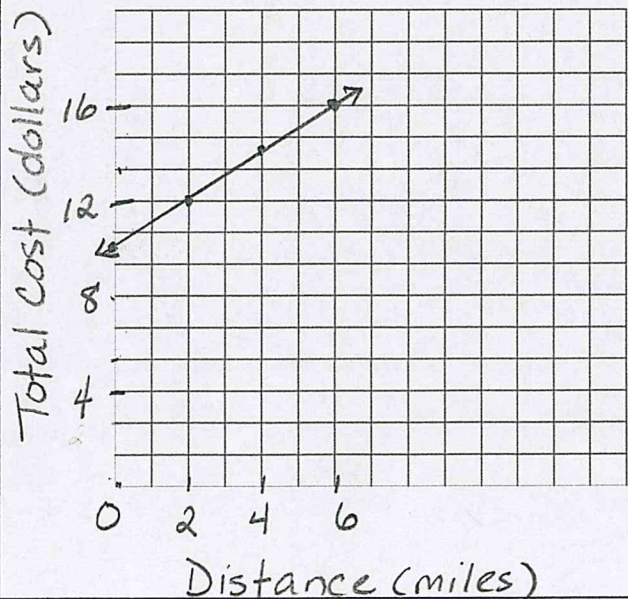
$$F(d) = d + 10$$

Create a Table of Values

	Independent Quantity	Dependent Quantity
Quantity	Distance	Total Cost
Units	miles	dollars
	0	\$10
	2	\$12
	4	\$14
	6	\$16
Expression	d	$d + 10$

Graph the Function

Label the x- and y-axes with the independent and dependent quantities and their units of measure.



SCENARIO #2 - T-SHIRT SHOP

Problem Situation

You get a part-time job at the Custom T-Shirt Shop in the Galleria where t-shirts are printed to order. For each order, the Custom T-Shirt Shop charges \$8.00 per shirt plus an initial set up fee of \$15.00.

How does the total cost of the t-shirts depend on how many t-shirts are ordered?

Write a Linear Equation

Define your variables:

Slope/Rate of Change: $\$8/\text{t-shirt}$

Starting Point/Y-intercept: $\$15.00$

Write the equation using function notation.

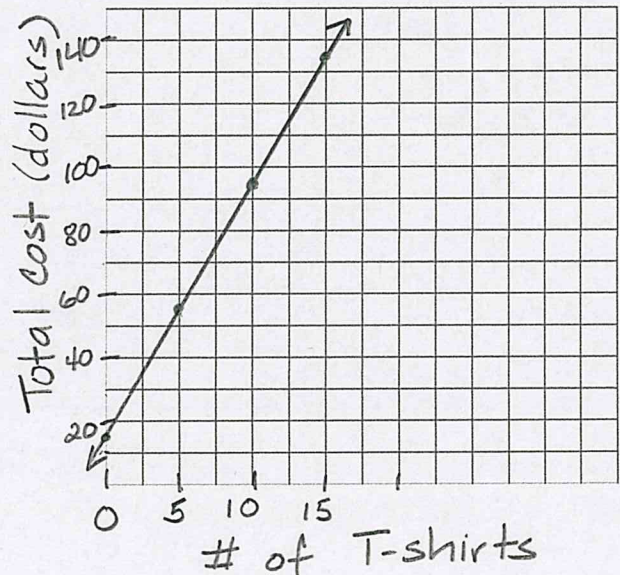
$$F(s) = 8s + 15$$

Create a Table of Values

	Independent Quantity	Dependent Quantity
Quantity	# of t-shirts	Total Cost
Units	# of t-shirts	dollars
	0	\$15
	5	\$55
	10	\$95
	15	\$135
Expression	s	$8s + 15$

Graph the Function

Label the x- and y-axes with the independent and dependent quantities and their units of measure.



SCENARIO #3 - CELL PHONE CHARGES

Problem Situation

You just got a new cell phone for Christmas. Unfortunately, your parents think you should pay the monthly charges. Your cell phone company charges \$20 every month plus \$0.50 per text message.

How does your total monthly cell phone bill depend on the number of text messages sent?

Write a Linear Equation

Define your variables:

Slope/Rate of Change: \$0.50/text msg

Starting Point/Y-intercept: \$20

Write the equation using function notation.

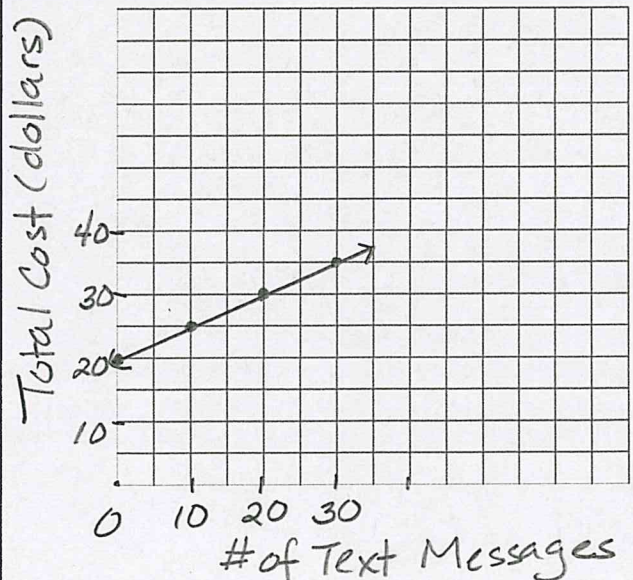
$$F(m) = 0.5m + 20$$

Create a Table of Values

	Independent Quantity	Dependent Quantity
Quantity	# of texts	Total Cost
Units	# of texts	dollars
	0	\$20
	10	\$25
	20	\$30
	30	\$35
Expression	m	$0.5m + 20$

Graph the Function

Label the x- and y-axes with the independent and dependent quantities and their units of measure.



SCENARIO #4 - POPULATION

Problem Situation

Suppose Pelham has a population of 5,000 residents, but the population is decreasing by 200 people each year as families relocate to Hoover.

How is the population in Pelham affected by time?

Write a Linear Equation

Define your variables:

Slope/Rate of Change: -200 people/year

Starting Point/Y-intercept: 5000

Write the equation using function notation.

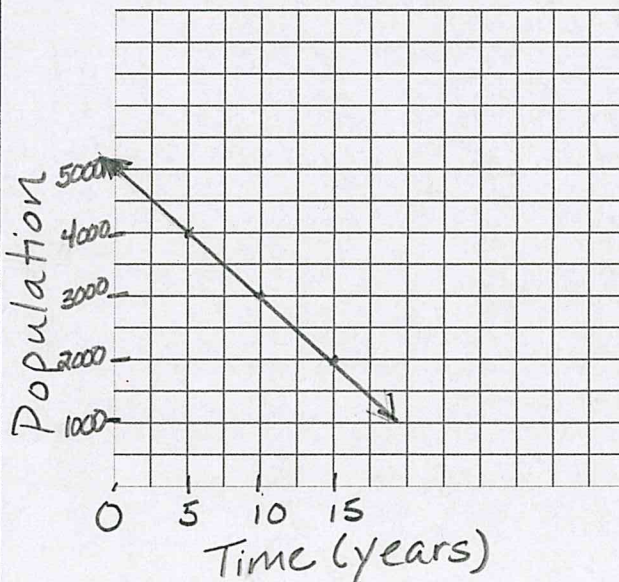
$$F(t) = -200t + 5000$$

Create a Table of Values

	Independent Quantity	Dependent Quantity
Quantity	Time	Population
Units	years	# of people
	0	5000
	5	4000
	10	3000
	15	2000
Expression	t	$-200t + 5000$

Graph the Function

Label the x- and y-axes with the independent and dependent quantities and their units of measure.



SCENARIO #5 - CARICATURES AT THE FAIR

Problem Situation

At the fair, Bob draws caricatures. He pays the fair \$30 for a space to set up his table and an easel and \$2 for each drawing he sells.

How does the total amount of money that Bob pays the fair depend on the number of caricatures he sells?

Write a Linear Equation

Define your variables:

Slope/Rate of Change: \$2/drawing

Starting Point/Y-intercept: \$30

Write the equation using function notation.

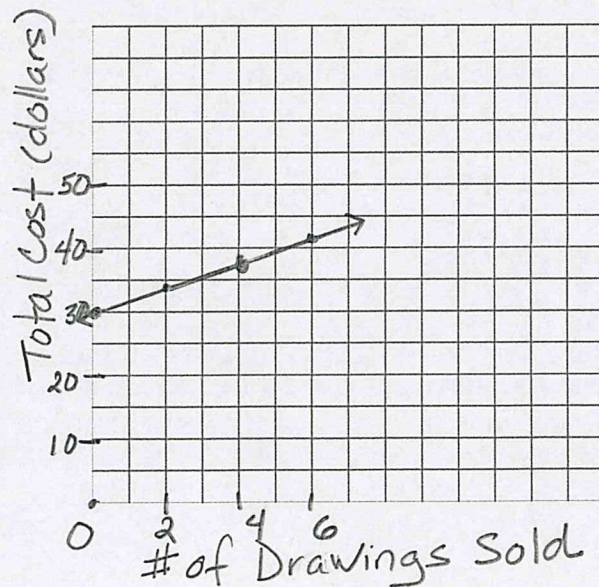
$$F(d) = 2d + 30$$

Create a Table of Values

	Independent Quantity	Dependent Quantity
Quantity	# of drawings sold	Total Cost
Units	# of drawings sold	dollars
	0	\$30
	2	\$34
	4	\$38
	6	\$42
Expression	d	$2d + 30$

Graph the Function

Label the x- and y-axes with the independent and dependent quantities and their units of measure.



SCENARIO #6 - PLUMBER

Problem Situation

You decide to have a costume party for Halloween. The party is a great success except that someone stuffs a roll of toilet paper down the toilet causing it to backup and overflow. You call a plumber for service who tells you that it will cost \$50 for the initial house visit plus an additional \$25 per hour.

How does the total cost of the plumber depend on the number of hours he spends repairing your plumbing?

Write a Linear Equation

Define your variables:

Slope/Rate of Change: \$25/hour

Starting Point/Y-intercept: \$50

Write the equation using function notation.

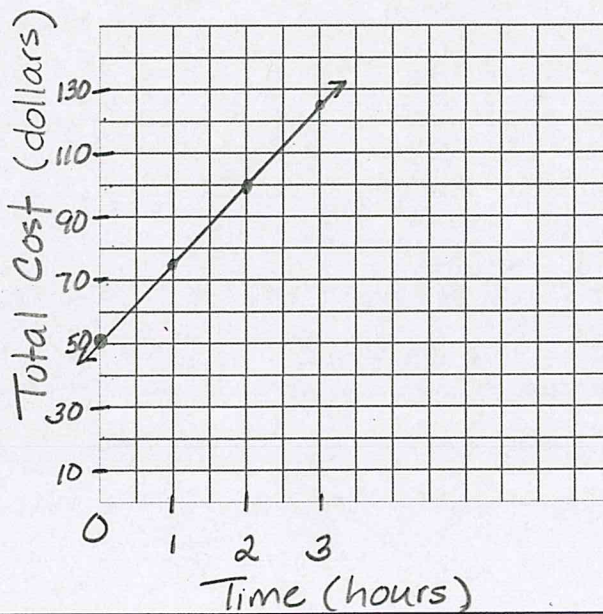
$$F(t) = 25t + 50$$

Create a Table of Values

	Independent Quantity	Dependent Quantity
Quantity	Time	Total Cost
Units	hours	dollars
	0	\$50
	1	\$75
	2	\$100
	3	\$125
Expression	t	$25t + 50$

Graph the Function

Label the x- and y-axes with the independent and dependent quantities and their units of measure.



EXIT SLIP - CREATE YOUR OWN SCENARIO

Problem Situation

Write a Linear Equation

Define your variables:

Slope/Rate of Change:

Starting Point/Y-intercept:

Write the equation using function notation.

Create a Table of Values

Graph the Function

Label the x- and y-axes with the independent and dependent quantities and their units of measure.

Quantity

Units

Expression

	Independent Quantity	Dependent Quantity
Quantity		
Units		
Expression		

