

Algebra / Writing an equation and drawing its graph to model a real-world situation...

Writing an equation and drawing its graph to model a real-world situation: Advanced

Owners of a recreation area are filling a small pond with water. They are adding water at a rate of 35 liters per minute. There are 700 liters in the pond to start.

Let W represent the amount of water in the pond (in liters), and let T represent the number of minutes that water has been added. Write an equation relating W to T , and then graph your equation using the axes below.

Equation:

$W = 35T + 700$
 function: $W(T) = 35T + 700$

y -axis
 x -axis

Plot points

$y = mx + b$
 $m = \text{slope}$
 $b = y\text{-intercept}$
 rate of change
 starting point

Pick any other number and plug it in
 $T = 1$
 $35(1) + 700$
 $35 + 700$
 735

Note: The Solve feature is not available to students.

Writing an equation and drawing its graph to model a real-world situation: Advanced

Scientists are studying the temperature on a distant planet. They find that the surface temperature at one location is 35° Celsius. They also find that the temperature decreases by 3° Celsius for each kilometer you go up from the surface.

Let T represent the temperature (in Celsius), and let H be the height above the surface (in kilometers). Write an equation relating T to H , and then graph your equation using the axes below.

Equation:

$T = -3H + 35$

$y = mx + b$
 $T = mH + b$

Plot a point

2 points
 ① $(0, y_{\text{int}}) = (0, 35)$

$H = x$

Writing an equation and drawing its graph to model a real-world situation: Advanced

Linda is driving on the highway. She begins the trip with 14 gallons of gas in her car. The car uses one gallon of gas every 20 miles.

Let G represent the number of gallons of gas she has left in her tank, and let D represent the total distance (in miles) she has traveled. Write an equation relating G to D , and then graph your equation using the axes below.

Equation:

$G = 14 - \frac{D}{20}$

20 miles = 1 gal

y -intercept = starting point
 Slope = change of rate

Plot a point

2 points
 ① $y_{\text{intercept}} = (0, y_{\text{int}})$
 ② Plug in a #

$x = 40$
 $14 - \frac{40}{20}$
 $14 - 2 = 12$

#Lines
 #LinearEquationsAndInequalities