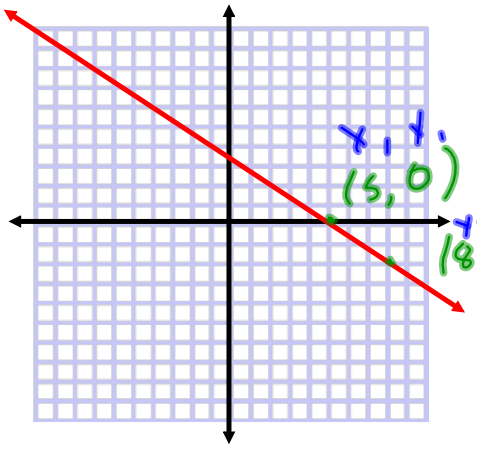


What is the slope?

What is the rise?

What is the run?

x_1, y_1
$(5, 0)$
$(8, -2)$

$\text{Slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 0}{8 - 5}$

$= \frac{-2}{3}$

-2

Negative

Lesson 7: word problems

4.5 Determine the characteristics of the graphs of linear relations, including the: • intercepts • slope • domain • range.

1) **The amount of money earned by an employee, E in dollars, varies directly with the number of hours, h , worked. The function can be represented by the following equation $E = \$8.25h$**

a) **Sketch a graph of the function. Label the axis. Identify the windows used.**

b) **What is the slope, and what does it represent?**

2) **A helicopter is traveling at maximum speed toward a boat in distress. The equation that relates its distance D, is nautical miles, away from the boat to the time traveled, t in minutes, is $D = -0.5t + 23$**

a) **Sketch a graph of the function. Label the axis. Identify the windows used.**

b) **What is the slope, and what does it represent?**

1) The amount of money earned by an employee, E in dollars, varies directly with the number of hours, h , worked. The function can be represented by the following equation **E = $8.25h**

$y = mx + b$

a) Sketch a graph of the function. Label the axis. Identify the windows used.

2) A helicopter is traveling at maximum speed toward a boat in distress. The equation that relates its distance D, is nautical miles, away from the boat to the time traveled, t in minutes, is $D = -0.5t + 23$ <= y intercept

a) Sketch a graph of the function. Label the axis. Identify the windows used.

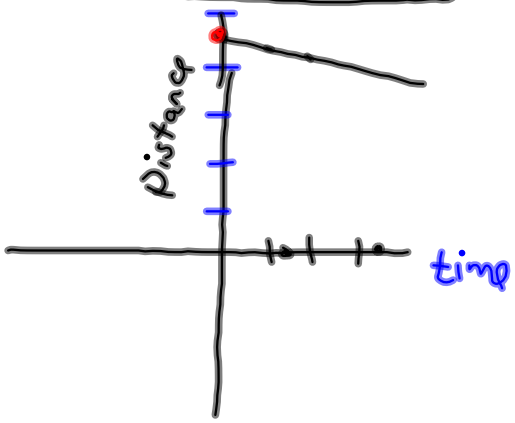
slope.

$D = -0.5t + 23$

variable

$y = mx + b$

Slope y int.



x (t)	y (D)
0	23
1	22.5
2	22
3	

Window: ymax = 25
ymin = 0

Slope? What does it represent?

$y = -0.5t + 23$ Slope $= -0.5$ $\frac{\Delta y}{\Delta x} = \frac{\text{dist (miles)}}{t\text{ (min)}}$

c) What is the y-intercept and what does it represent? miles/min (speed)

23 or (0,23) it tells us that... at the beginning,

Set $x=0$: $y = -0.5(0) + 23 = 23$ the distance is 23 miles.

d) What is the x-intercept and what does it represent?

Set $y=0$: $0 = -0.5t + 23$ $t = 46$. (46,0)

$\frac{-23}{-0.5} = \frac{-0.5t}{-0.5} + \frac{23-23}{-0.5}$ tells us when the helicopter reaches boat.

3) The cost of renting a car is calculated using a fixed cost and a variable cost. The function is represented by $C = 0.10d + 20$. where C is the total cost and d is the distance in kilometers.

a) Sketch a graph of the function. Label the axis. Identify the windows used.

b) What is the slope, and what does it represent?

c) What is the y-intercept and what does it represent?

4) A car is traveling south towards Hay River. The distance in kilometers that the car is north of Hay River is represented by d, and the time traveled is t, hours. The equations is **d = -80t + 240.**

a) Sketch a graph of the function. Label the axis. Identify the windows used.

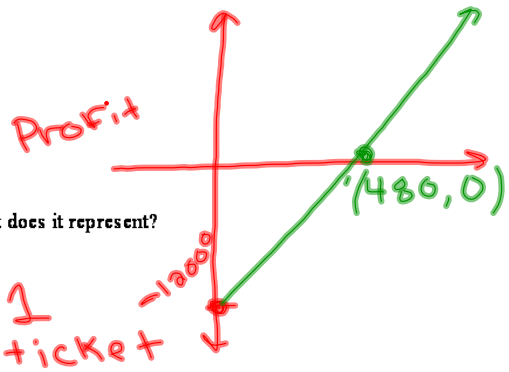
b) What is the slope, and what does it represent?

c) What is the y-intercept and what does it represents?

d) What does the intercept with the x-axis represent?

5) A local promoter is organizing an outdoor summer music concert in the park. The Profit, P dollars, is a function of the numbers of tickets t, sold. The equation is $P = 25t - 12\,000$

a) Sketch a graph of the function. Label the axis. Identify the windows used.



b) What is the slope, and what does it represent?

25 cost per 1 ticket

$\frac{\text{rise}}{\text{run}}$ $\frac{\$}{1 \text{ ticket}}$.

(C) y intercept = -12 000

the debt you have from putting off the concert

(D) x intercept = 480

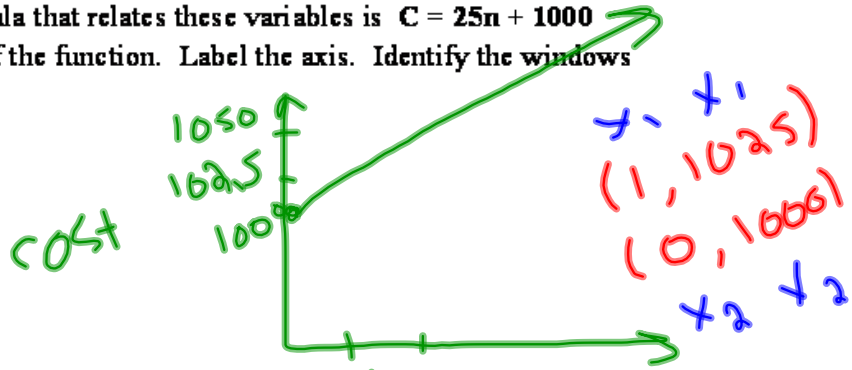
that is the # of tickets I have to sell in order to make a Profit.

c) What is the y-intercept and what does it represent?

d) What is the x-intercept and what does it represent?

6) The cost C in dollars of a banquet depends on the number n of people attending. A formula that relates these variables is $C = 25n + 1000$

a) Draw a graph of the function. Label the axis. Identify the windows used.



b) What is the slope, and what does it represent?

$\text{slope} = 25 \quad \frac{\#}{\#\text{ of ppl}} \quad \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{1000 - 1025}{0 - 1} = \frac{-25}{-1} = \frac{25}{1}$

Cost per Person.

c) What is the y-intercept and what does it represent?

1000

initial cost.