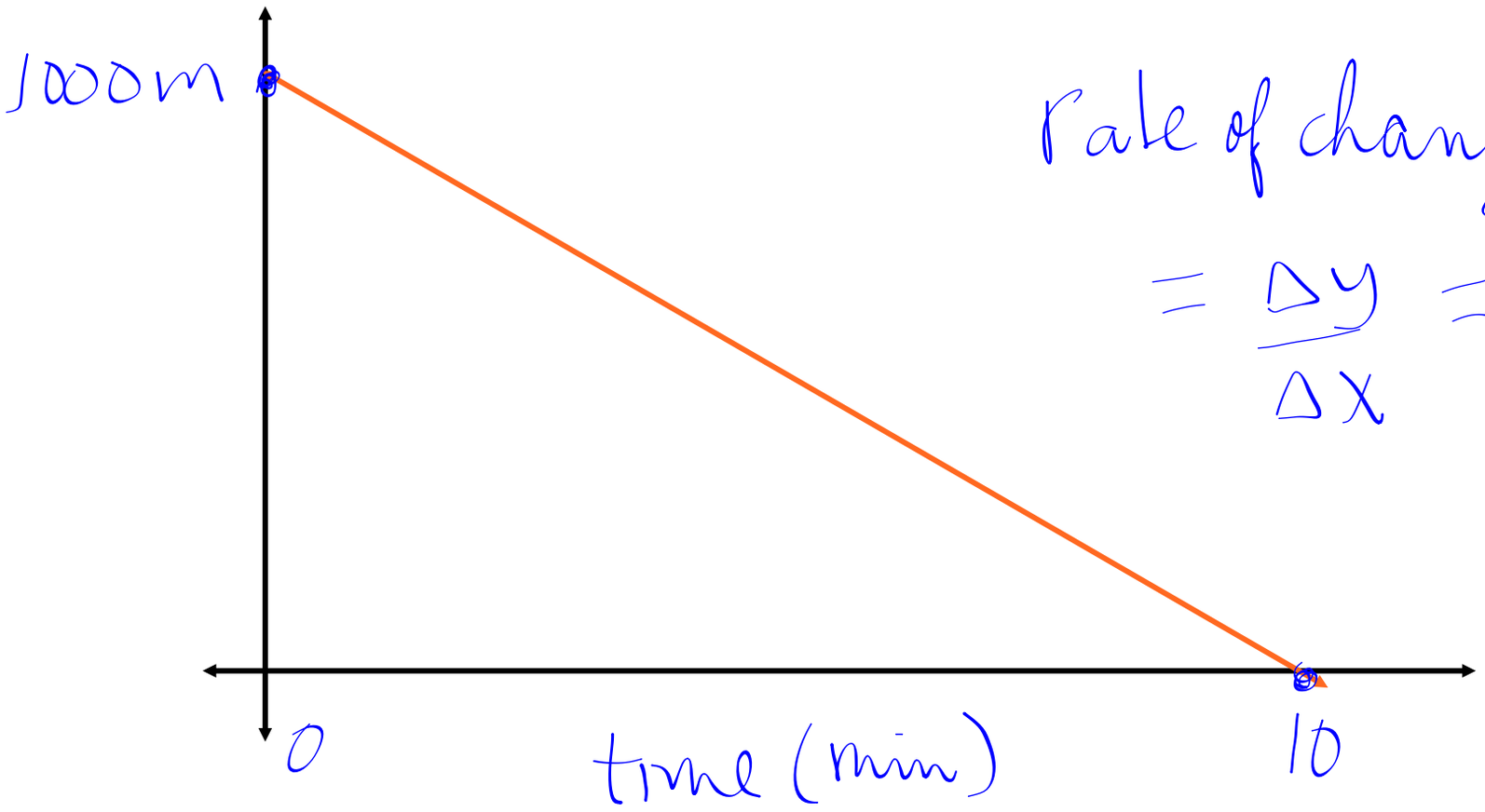
Make Connections: pg. 311



rate of change

$= \frac{\Delta y}{\Delta x} = \frac{-1000\ m}{10\ min}$

$= -100\ m/min$

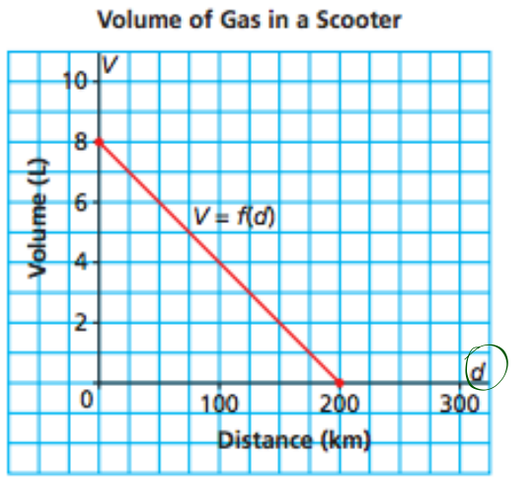
5.7 Interpreting Graphs of Linear Functions

Make Connections: pg. 311

* A straight line that is not vertical always represents a linear function

* You can always use the x and y intercepts to describe the graph of a linear function.

This graph shows the fuel consumption of a scooter with a full tank of gas at the beginning of a journey.



a) (200, 0) ⇒ x-int.
(0, 8) ⇒ y-int.

amount of fuel in the tank

distance travelled on a tank of fuel

b) $D = \{d \in \mathbb{R} \mid 0 \leq d \leq 200\}$
$R = \{V \in \mathbb{R} \mid 0 \leq V \leq 8\}$

a) Write the coordinates of the points where the graph intersects the axes. Determine the vertical and horizontal intercepts. Describe what the points of intersection represent.

b) What are the domain and range of this function?

c) Find the slope of the graph

c) $m = \frac{\Delta y}{\Delta x}$

$= \frac{-8\text{ L}}{200\text{ km}}$

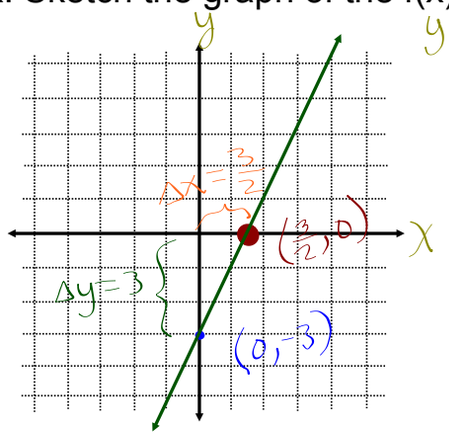
$= -0.04\text{ L/km}$

* If you have the equation of a function, you can make a graph by finding only the intercepts and then connecting the points.

> To find the x-intercept, replace y = 0 and solve for x

> To find the y-intercept, replace x = 0 and solve for y

ex. Sketch the graph of the f(x) = 2x - 3 and find the rate of change (slope).



$y = 2x - 3$

x-int.: $y = 0 \Rightarrow 0 = 2x - 3$ (+3)

$\frac{3}{2} = \frac{2x}{2} \Rightarrow x = \frac{3}{2}$

y-int.: $x = 0 \Rightarrow y = 2(0) - 3$

$y = -3$

$m = \frac{\Delta y}{\Delta x} = \frac{\text{rise}}{\text{run}}$

$= \frac{3}{3/2} = 3 \div \frac{3}{2}$

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

$m = 2$

positive

* If m > 0, the function is increasing

* If m < 0, the function is decreasing

negative

} from left to right

Homefun: Pg. 319 # 4-6, 8-10, 12-16, 19

Test Friday