



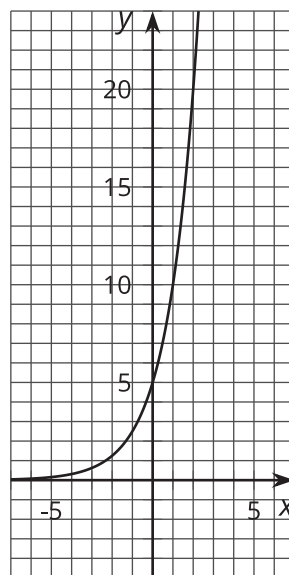
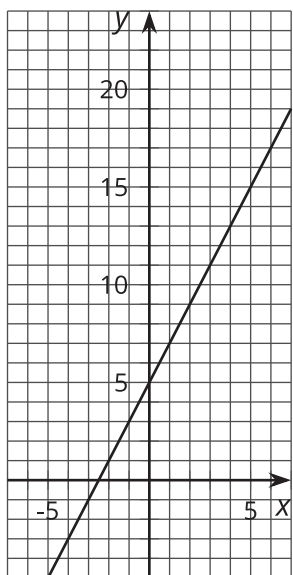
# Relating Linear Equations and Their Graphs

Let's connect functions to features of their graphs.

## 10.1

## Notice and Wonder: Features of Graphs

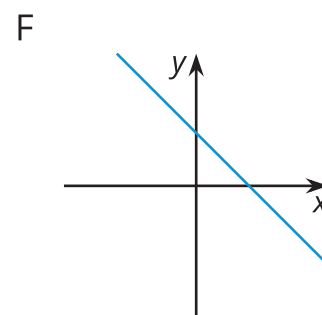
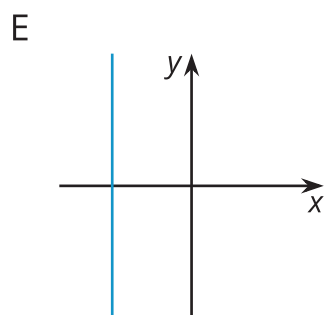
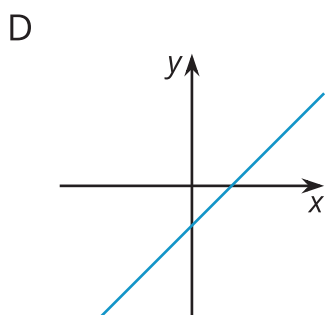
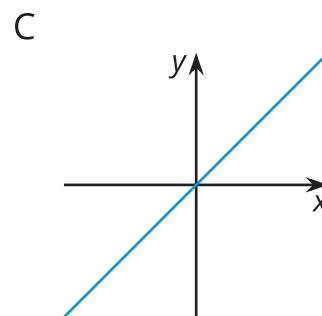
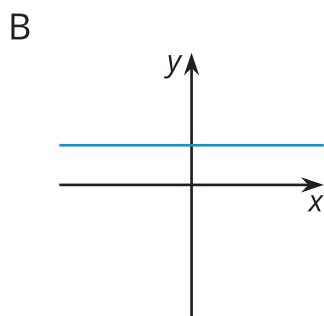
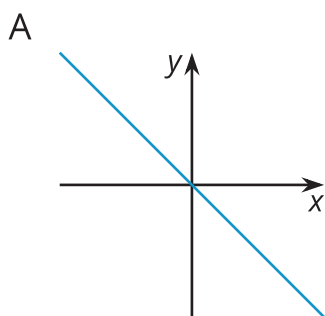
Here are graphs of  $y = 2x + 5$  and  $y = 5 \cdot 2^x$ .



What do you notice? What do you wonder?

## 10.2 Making Connections

1. Here are some equations and graphs. Match each graph to one or more equations that it *could* represent. Be prepared to explain how you know.



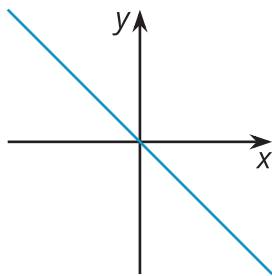
- $y = 8$
- $y = 3x - 2$
- $x + y = 6$
- $0.5x = -4$
- $y = x$
- $-\frac{2}{3}x = y$
- $12 - 4x = y$
- $x - y = 12$
- $2x + 4y = 16$
- $3x = 5y$

2. Choose either Graph D or F. Let  $x$  represent hours after noon on a given day and  $y$  represent the temperature in degrees Celsius in a freezer.
- In this situation, what does the  $y$ -intercept mean, if anything?
  - In this situation, what does the  $x$ -intercept mean, if anything?

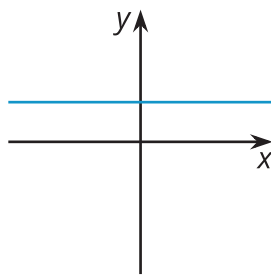
## 10.3

## Connecting Equations and Graphs

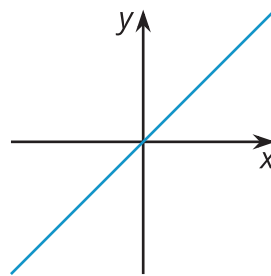
A



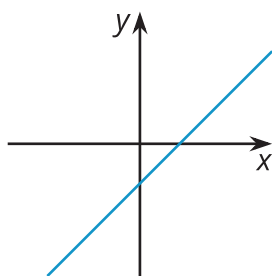
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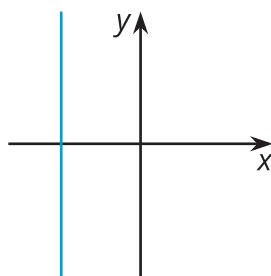
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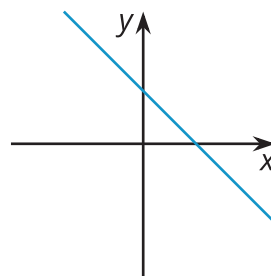
D



E



F



1. Without substituting any values for  $x$  and  $y$  or using technology, decide whether Graph A could represent each equation, and explain how you know.

a.  $4x = y$

b.  $x - 8 = y$

c.  $-5x = 10y$

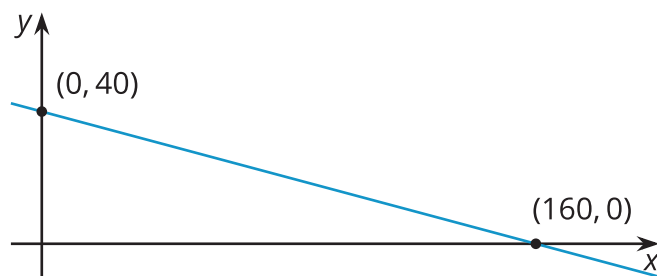
d.  $3y - 12 = 0$

2. Write a new equation that could be represented by:

a. Graph D

b. Graph F

3. On this graph,  $x$  represents minutes since midnight and  $y$  represents temperature in degrees Fahrenheit.



- a. Explain what the intercepts tell us about the situation.
- b. Write an equation that relates the two quantities.