



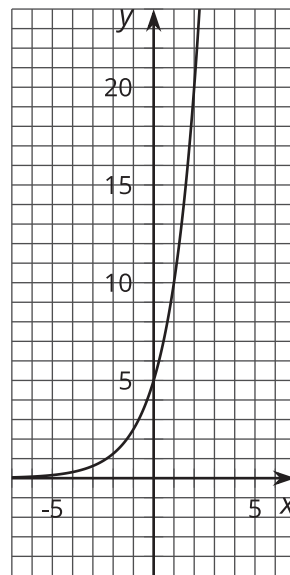
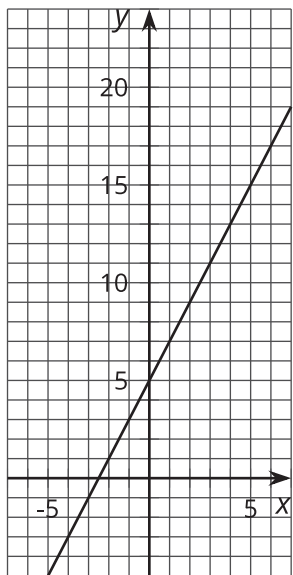
Relating Linear Equations and Their Graphs

Let's connect functions to features of their graphs.

10.1

Notice and Wonder: Features of Graphs

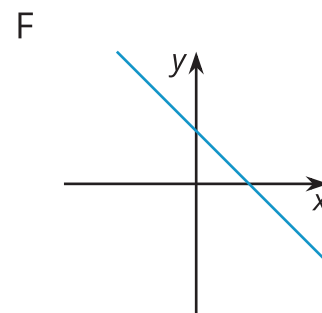
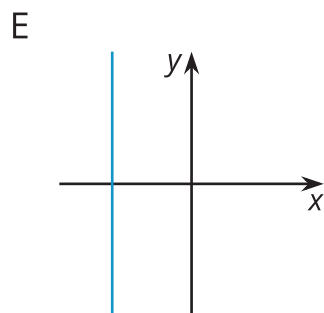
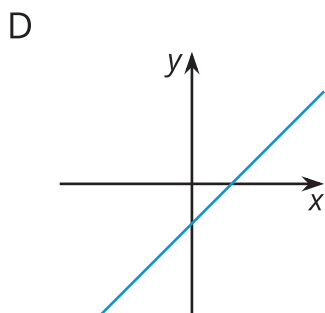
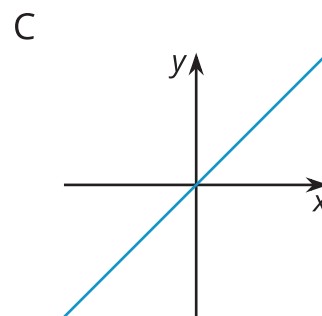
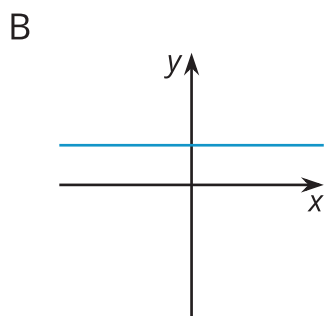
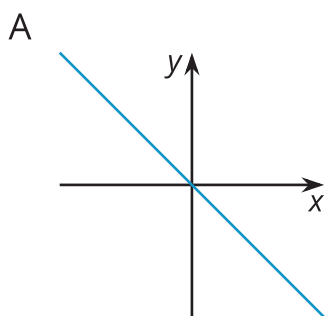
Here are graphs of $y = 2x + 5$ and $y = 5 \cdot 2^x$.



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.



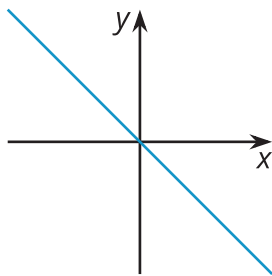
- $y = 8$
- $y = 3x - 2$
- $x + y = 6$
- $0.5x = -4$
- $y = x$
- $-\frac{2}{3}x = y$
- $12 - 4x = y$
- $x - y = 12$
- $2x + 4y = 16$
- $3x = 5y$

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?

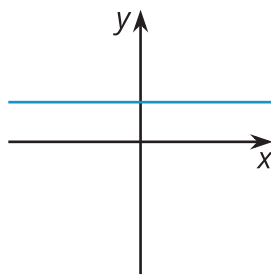
10.3

Connecting Equations and Graphs

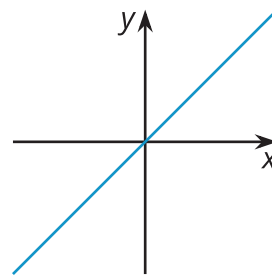
A



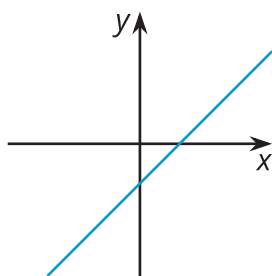
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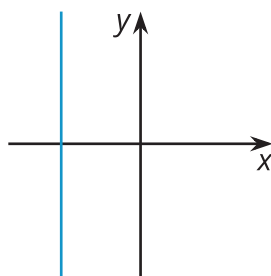
C



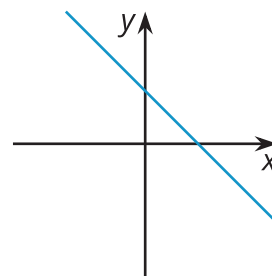
D



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. $-5x = 10y$

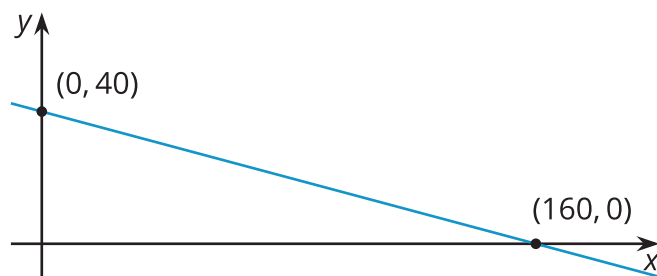
d. $3y - 12 = 0$

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.