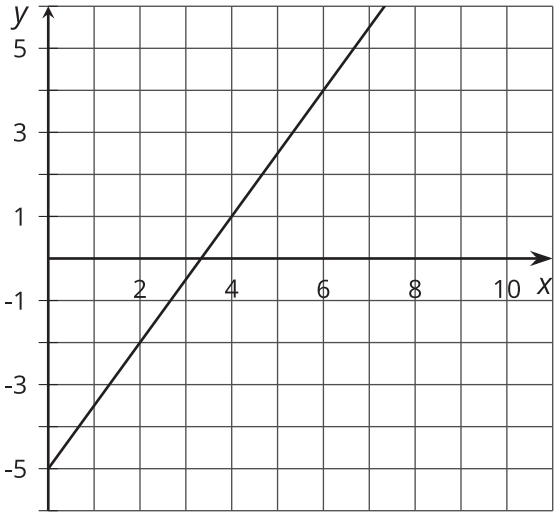
Unit 2, Lesson 17

Number of Solutions in One-Variable Equations

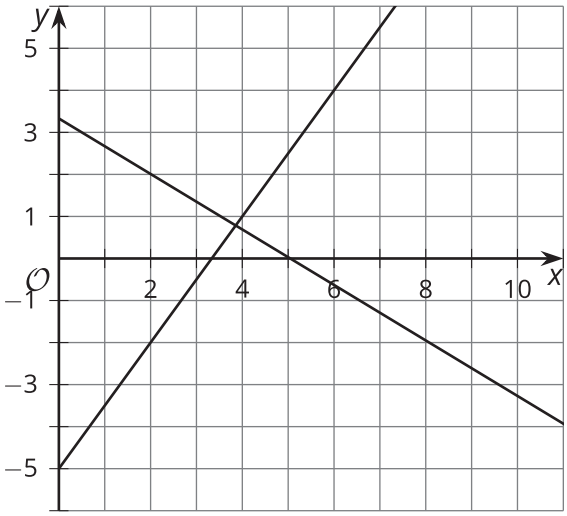
Let's look at the number of solutions an equation may have.

17.1 Notice and Wonder: Three Graphs

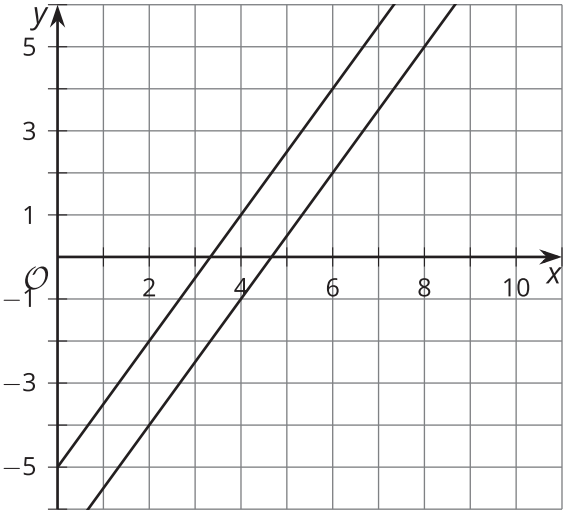
What do you notice? What do you wonder?



$3x - 2y = 10$ $9x - 6y = 30$



$3x - 2y = 10$ $2x + 3y = 10$



$3x - 2y = 10$ $3x - 2y = 14$

17.2 How Many Answers?

How many values of x make each equation true?

1. $3x + 1 = 10$

2. $2x + 12 = 2x + 10 + 2$

3. $2x = x + 2$

4. $3(x + 4) = 3x + 4$

5. $\frac{2x+6}{2} = x + 6$

6. $0 = 0$

7. $x + 3x - 4 = 7(x - \frac{4}{7})$

8. $0 = 6$

With your partner, discuss what you notice about the equations based on the number of solutions they have.

17.3 Write, Trade, Check

1. Write an equation that has either 1, 0, or infinite solutions.

2. Trade your equation with your partner. Solve the equation you are given, and figure out the number of solutions.
3. Take turns explaining your reasoning with your partner.
4. Repeat the process with a new equation.