* 1. Linear Equations
* As you recall from Algebra 1, linear equations always have exactly 1 or 0 solutions or they may have an infinite set of solutions.
* The set of all solutions to an equation is called the solution set and is denoted with braces, .
* For example, the solution set of is since is the only solution to this equation. Equations that have countable numbers of solutions are called conditional equations.
* Note that the equation is true for all real numbers chosen for . The solution set of this equation is where denotes the set of all real numbers. Equations in which all real numbers are solutions are called identities.
* The equation is not true for any real number, . It’s solution set is empty, denoted . We say that this equation forms a contradiction.
* By the way, this would be a good time to review the symbols used for the most common sets of numbers.
  + is the set of natural numbers
  + is the set of integers
  + is the set of rational numbers
  + The set of irrational numbers is the set of all real numbers that are not rational. Sometimes, this set is denoted with .
  + is the set of all real numbers. A very important property of real numbers is that they can be ordered and thus placed on a number line. We will use this conceptual “definition” for this course.
  + is the set of complex numbers. We’ll define these next time.

Examples. Solve each equation and state whether it is conditional, an identity, or a contradiction.

* for .
* for .
* for .
* for
* for .
* tells us the relationship between Fahrenheit and Celsius temperatures.
  + Find the Fahrenheit temperature that is equivalent to .
  + Find the Celsius temperature that is equivalent to .