

1. Multiplying Polynomials - The FOIL method
2. You should be familiar with algebraic expressions involving variables and the distributive law. In this lesson, we demonstrate a method of multiplying polynomials, called the FOIL method.
3. Recall the distributive law, when a polynomial like $x + 3$ is multiplied by a single term like 2, the 2 is multiplied to each term in the polynomial. We multiply 2 times x and then multiply 2 times 3.
4. When two binomials are multiplied, each of the terms in the first binomial is distributed over the second binomial. We multiply the x by both x and -2 . Likewise, we multiply the 3 by both x and -2 . This is often called the FOIL method, we multiply the First terms, the Outside terms, the Inside terms and the Last Terms. We then combine like terms at the end.
5. Here is a second example. Be careful when multiplying two negative terms together. When we multiply $-4x$ by -1 , we are multiplying two negative quantities, which becomes positive in the product. Again, we combine like terms to simplify. It is standard to write the answer arranging the terms with the exponent on x in decreasing order. We start with the term with the highest power of x , which in this case is $-20x^2$, then add the term $14x$, and finish with the constant.
6. The idea extends to polynomials of any length. Each term in the first polynomial is distributed over each term in the second polynomial. In the case, we multiply the x^2 by both x^2 and 2, then multiply the $4x$ by both x^2 and 2, then finally, multiply the -3 by both x^2 and 2, combining like terms at the end.