

## FOIL

1. Multiply the **F**irst terms of each binomial.
2. Multiply the **O**utside terms
3. Multiply the **I**nside terms
4. Multiply the **L**ast two terms of each binomial.

Multiply using FOIL:  $(x + 3)(x + 2) = \overbrace{x^2}^{\text{F}} \quad \overbrace{+2x}^{\text{O}} \quad \overbrace{+3x}^{\text{I}} \quad \overbrace{+6}^{\text{L}} = x^2 + 5x + 6$

Notice that the two inside terms are like terms that can be added together.  
This method is known as the FOIL method. It gets its name from the process:

### SAME SIGNS:

1.  $(x + 4)(x + 5) = \underline{x^2} \quad \overset{4x+5x}{\downarrow} \underline{+9x} \quad \underline{+20}$
2.  $(x + 1)(x + 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
3.  $(x + 7)(x + 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
4.  $(x + 5y)(x + 6y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
5.  $(x + 8y)(x + 9y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
6.  $(5x + 6)(x + 7) = \underline{5x^2} \quad \overset{35x+6x}{\downarrow} \underline{+41x} \quad \underline{+42}$
7.  $(x + 2)(3x + 5) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
8.  $(3x + 8)^2 = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
9.  $(x - 5)(x - 4) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
10.  $(x - 8)(x - 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
11.  $(x - 2)(x - 4) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
12.  $(2x - 1)(x - 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
13.  $(3x - 4)^2 = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
14.  $(2x - 3y)(4x - 5y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
15.  $(2x - 5y)(3x - 4y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
16.  $(2x - 5y)(x - 4y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
17.  $(x + 3)(x + 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
18.  $(2x - 7)(2x - 7) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$

### DIFFERENT SIGNS:

1.  $(x - 4)(x + 5) = \underline{x^2} \quad \overset{+5x-4x}{\downarrow} \underline{+1x} \quad \underline{-20}$
2.  $(x + 1)(x - 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
3.  $(x - 7)(x + 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
4.  $(x + 5y)(x - 6y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
5.  $(x - 8y)(x + 9y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
6.  $(5x + 6)(x - 7) = \underline{\quad} \quad \overset{-35x+6x}{\downarrow} \underline{\quad} \quad \underline{\quad}$
7.  $(x - 2)(3x + 5) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
8.  $(3x + 8)(5x - 6) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
9.  $(x + 5)(x - 4) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
10.  $(x - 8)(x + 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
11.  $(x + 2)(x - 4) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
12.  $(2x - 1)(x + 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
13.  $(x + 5)(3x - 4) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
14.  $(2x - 3y)(4x + 5y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
15.  $(2x - 5y)(3x + 4y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
16.  $(2x + 5y)(x - 4y) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
17.  $(x + 3)(x - 3) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$
18.  $(2x - 7)(2x + 7) = \underline{\quad} \quad \underline{\quad} \quad \underline{\quad}$

**Evaluate for the given value(s) of the variable:**

1.  $x^2 + 4x - 5$  for  $x = 2$

2.  $3x^2 - 3x$  for  $x = -2$

3.  $-2x^2 - 4x + 5$  for  $x = -3$

4.  $x^2 - 3xy + y^2$  for  $x = -1, y = 2$

5.  $2xy - x^2 - 2y$  for  $x = -2, y = 3$