

Intro to College Math: Chapter 5.6
Special Products

1. Multiply and simplify. $(5x-3)^2$

$$\begin{aligned} &(5x-3)^2 \\ &(5x-3)(5x-3) \\ &\underline{25x^2} \quad \underline{-15x} \quad \underline{-15x} \quad +9 \\ &\boxed{25x^2 - 30x + 9} \end{aligned}$$

* When you see something squared, that means to write it down twice and multiply it together.

Foil Method:

1. Multiply 1st term in the 1st set of () by both terms in 2nd set of ().
2. Multiply the 2nd term in the 1st set of () by both terms in the 2nd set of ().
3. Combine like terms.

2. Perform the indicated operation. $(5a+9)^2$

$$\begin{aligned} &(5a+9)^2 \\ &(5a+9)(5a+9) \\ &\underline{25a^2} \quad \underline{+45a} \quad \underline{+45a} \quad +81 \\ &\boxed{25a^2 + 90a + 81} \end{aligned}$$

* Since the whole thing is squared, write it down twice + then use foil method to multiply.

Foil Method:

1. Multiply 1st term in the 1st set of () by both terms in 2nd set of ().
2. Multiply the 2nd term in the 1st set of () by both terms in the 2nd set of ().
3. Combine like terms.

3. Perform the indicated operation. $(3x-1)^2$

$$\begin{aligned} &(3x-1)^2 \\ &(3x-1)(3x-1) \\ &\underline{9x^2} \quad \underline{-3x} \quad \underline{-3x} \quad +1 \\ &\boxed{9x^2 - 6x + 1} \end{aligned}$$

4. Perform the indicated operation. $(-9x-4)^2$

$$\begin{aligned} &(-9x-4)^2 \\ &(-9x-4)(-9x-4) \\ &81x^2 + \underline{36x} + \underline{36x} + 16 \\ &\boxed{81x^2 + 72x + 16} \end{aligned}$$

* Since the whole thing is squared, write it down twice + then use foil method to multiply.

Foil Method:

1. Multiply 1st term in the 1st set of () by both terms in 2nd set of ().
2. Multiply the 2nd term in the 1st set of () by both terms in the 2nd set of ().
3. Combine like terms.

5. Perform the indicated operation. $(8x+4)(8x-4)$

$$\begin{aligned} &(8x+4)(8x-4) \\ &64x^2 - \underline{32x} + \underline{32x} - 16 \\ &\boxed{64x^2 - 16} \end{aligned}$$

* Use the foil method to multiply.

* Notice the x 's cancel each other out.

6. Perform the indicated operation. $(3-7x)(3+7x)$

$$\begin{aligned} &(3-7x)(3+7x) \\ &9 + \underline{21x} - \underline{21x} - 49x^2 \\ &\boxed{9 - 49x^2} \end{aligned}$$

* Use the foil method to multiply.

* Notice the x 's cancel each other out.