

We're continuing our work on polynomials. We'll be doing some multiplication today, and some work with polynomials of more than one variable.

What is $(3x + 3)(2x - 1)$?

$$6x^2 + 3x - 3$$

	$3x$	3
$2x$	$6x^2$ $(3x)(2x)$	$6x$ $(3)(2x)$
-1	$-3x$ $(3x)(-1)$	-3 $(3)(-1)$

What is $(5x - 4)(7x + 3)$?

$$35x^2 - 13x - 12$$

	$7x$	3
$5x$	$35x^2$	$15x$
-4	$-28x$	-12

THE METHOD

We are finding the product of polynomials by using the idea of finding the area of a rectangle. We find the total area by summing all the parts.

What is $(3x - 2)^2$?

$$9x^2 - 12x + 4$$

	$3x$	-2
$3x$	$9x^2$	$-6x$
-2	$-6x$	4

If you got $9x^2 - 12x - 4$, you did not check your work! You should have tried putting a number in for x , such as 10 or 1 or whatever. If you had used 1, you would have seen that $(3 \cdot 1 - 2)^2 = 1$, so your polynomial product should be 1 when you put in 1 for x . But $9(1)^2 - 12(1) - 4 = 9 - 12 - 4 = -3 - 4 = -7$.

important!!

THINK!!!

What is $(3x^5 - 18)^2$?

$$9x^{10} - 108x^5 + 324$$

	$3x^5$	-18
$3x^5$	$9x^{10}$	$-54x^5$
-18	$-54x^5$	324

What is $(T^3 - 1)(4T^3 - 3T^2 - 7T + 1)$? Use the area principle!!!

	$4T^3$	$-3T^2$	$-7T$	1
T^3	$4T^6$	$-3T^5$	$-7T^4$	T^3
-1	$-4T^3$	$3T^2$	$7T$	-1

$$4T^6 - 3T^5 - 7T^4 - 3T^3 + 3T^2 + 7T - 1$$