Multiplying monomials by polynomials

To multiply a monomial by a polynomial, multiply the monomial by each term in the polynomial using the procedure for multiplication of exponents. **Think distributive property!**

$$-2x(3x^2 - 4x + 5)$$

1) $x(7x^2 + 4)$

2) $-2x^2(-5 - 7x)$

Multiplying Polynomials

To find the product of two polynomials, multiply each term in the first factor by each term in the other factor. Then combine like terms.

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

You can also multiply polynomials using the **Box (also called Table) Method**.

Ex.

(7x + 2)(5x + 1)

	5x	1
7x	7x • 5x **35x^2**	7x • 1 **7x**
2	2 • 5x **10x**	2 • 1 **2**

35x^2 + 10x + 7x + 2
35x^2 + 17x + 2

Your Turn

3) (7x^2 - 2)(x^2 - 5x - 1)

4) (x^2 - 3x - 1)(- 5x + 1)

5) (3x + 1)(4x - 1)   -- use box or table

6) $(3x + 2)(3x - 2)$ -- use box or table

7) (3x - 1)^2

8) (2x^2 + 3x - 1)(5x^2 + 2x + 1)

When you see a binomial squared, write it out and then multiply!

9) $(y+6)^2 = (y + 6)(y + 6)$

10) $(4a - 7)^2$

We can also use the FOIL METHOD to multiply binomials.

F   **O**   **I**   **L**

_____   _____   _____   _____

(2x + 3)(4x + 1)   draw your arrows … make a SMILE!

You Try

Use the FOIL method to multiply the following binomials.

11.   (x – 1)(x – 7)

12.   (x – 1)(x + 6)

13.   (x + 2)(x + 2)

14.   (x – 4)(x + 4)

9.2 Multiplying Polynomials Homework- You can use the boxes if you want.

1. $x(x^2 + 9x - 5)$

2. $2x(4x^3 + 3x - 8)$

3. $(x - 3)(x + 5)$

4. $(x^2 + 2)(x + 11)$

5. $(6 + x^2)(4 + x^2)$

6. $(2 - x)(1 - x)$

7. $(9 - x)(4 + x^3)$

8. $(x - 4)(x^2 - 2x + 6)$

9. $(2x - 3)(4x^2 - 3x + 3)$

10. $(6x + 2)(2x^3 + x + 1)$

Multiply using the FOIL METHOD.

11. $(x + 5)(x - 5)$

12. $(3x + 2)(3x - 2)$

13. $(x + 20)(\quad)$

14. $(xy + 2)(\quad)$

15. $(y + 6)^2$

16. $(4a - 7)^2$