

Lesson #2 Multiplying Polynomials

Expand by Distributive Property

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

$$= 8x^2 + 14x$$

2) $(x - 11)(x + 6)$

$$= x(x - 11) + 6(x - 11)$$

$$= x^2 - 11x + 6x - 66$$

$$= x^2 - 5x - 66$$

Expand by FOILING

3) $(4x - 6)(7x + 8)$

First
Outside
Inside
Last

$$= 28x^2 + 32x - 42x - 48$$

$$= 28x^2 - 10x - 48$$

5) $(8n + 2)(3n - 8)$

$$= 24n^2 - 64n + 6n - 16$$

$$= 24n^2 - 58n - 16$$

7) $(5x + 3)(5x - 3)$

$$= 25x^2 - 15x + 15x - 9$$

$$= 25x^2 - 9$$

4) $(5v - 7)(2v + 2)$

$$= 10v^2 + 10v - 14v - 14$$

$$= 10v^2 - 4v - 14$$

6) $(x + 1)(3x - 8)$

$$= 3x^2 - 8x + 3x - 8$$

$$= 3x^2 - 5x - 8$$

8) $(4x - 7)^2$

$$= (4x - 7)(4x - 7)$$

$$= 16x^2 - 28x - 28x + 49$$

$$= 16x^2 - 56x + 49$$

Expand the binomials, then distribute the number in front.

9) $4(x+9)(x-5)$ *FOIL First*

$$= 4(x^2 - 5x + 9x - 45)$$

$$= 4(x^2 + 4x - 45)$$

Now distribute the 4.

$$= 4x^2 + 16x - 180$$

10) $-\frac{1}{2}(x-10)(x+4)$

$$= -\frac{1}{2}(x^2 + 4x - 10x - 40)$$

$$= -\frac{1}{2}(x^2 - 6x - 40)$$

$$= -\frac{1}{2}x^2 + 3x + 20$$

11) $-4(2v+2)(v+3)$

$$= -4(2v^2 + 6v + 2v + 6)$$

$$= -4(2v^2 + 8v + 6)$$

$$= -8v^2 - 32v - 24$$

12) $5(8x+9)^2$

$$= 5(8x+9)(8x+9)$$

$$= 5(64x^2 + 72x + 72x + 81)$$

$$= 5(64x^2 + 144x + 81)$$

$$= 320x^2 + 720x + 405$$

Expand and Simplify.

13) $(8x-5)(7x^2-x+1)$

$$= 56x^3 - 8x^2 + 8x - 35x^2 + 5x - 5$$

$$= 56x^3 - 43x^2 + 13x - 5$$

14) $(x^2+x-4)(6x^2+8x+3)$

$$= 6x^4 + 8x^3 + 3x^2 + 6x^3 + 8x^2 + 3x - 24x^2 - 32x - 12$$

$$= 6x^4 + 14x^3 - 13x^2 - 29x - 12$$