

## 9.2 : Multiplying Polynomials

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Find the product

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

We distribute

$$2x^6 + 6x^5 - 4x^4 + 10x^3$$

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

$$6x^6 + 3x^5 + 9x^3 - 24x^2$$

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

First:  $x \cdot 3x = 3x^2$

Outside:  $x \cdot 2 = 2x$

Inside:  $-4 \cdot 3x = -12x$

Last:  $-4 \cdot 2 = -8$

$$3x^2 + 2x - 12x - 8$$

combine like terms

$$3x^2 - 10x - 8$$

\* F. O. I. L  
 Binomial + Binomial  
 First  
 Outside  
 Inside  
 Last

$$(2x+3)(4x+1)$$

$$8x^2 + 2x + 12x + 3$$

$$\star 8x^2 + 14x + 3$$

On your own:

$$\textcircled{1} (3a+4)(a-2)$$

$$3a^2 - ba + 4a - 8$$

$$3a^2 - 2a - 8$$

foil

$$\textcircled{2} (4b-5)(b-2)$$

$$4b^2 - 8b - 5b + 10$$

$$4b^2 - 13b + 10$$

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

★ Break it apart

$$2x^2 \cdot 4x = 8x^3$$

$$2x^2 \cdot -3 = -6x^2$$

$$5x \cdot 4x = 20x^2$$

$$5x \cdot -3 = -15x$$

$$-1 \cdot 4x = -4x$$

$$-1 \cdot -3 = 3$$

$$8x^3 + \underline{-6x^2} + \underline{20x^2} + \underline{-15x} + \underline{-4x} + 3$$

$$8x^3 + 14x^2 + -19x + 3$$

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

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

$$x^3 + \underline{2x^2} + \underline{2x^2} + \underline{4x} + \underline{x} + 2$$

$$x^3 + 4x^2 + 5x + 2$$

On your own:

$$(3y^2 - y + 5)(2y - 3)$$

$$* 3y^2(2y - 3) + -y(2y - 3) + 5(2y - 3)$$

$$* 6y^3 - 9y^2 + -2y^2 + 3y + 10y - 15$$

$$\rightarrow \underline{\underline{6y^3 - 11y^2 + 13y - 15}}$$

The dimensions of a rectangle are  $x+3$  and  $x+2$ . Which expression represents the area of the rectangle.

$$A = l \cdot w$$

$$A = (x+3)(x+2)$$

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

$$x^2 + 5x + 6$$

# In Class #3

①  $x(7x^2 + 4)$   
 $7x^3 + 4x$

②  $(a+3)(2a+1)$   
 $2a^2 + 7a + 3$

③  $(4n-1)(n+5)$   
 $4n^2 + 19n - 5$

④  $(a^2 + 3a - 4)(2a + 3)$   
 $2a^3 + 9a^2 + a - 12$

⑤  $(2x^2 - x - 2)(3x - 1)$   
 $6x^3 - 5x^2 - 5x + 2$

Tonights homework

Backside of

9.1 homework  
from Thursday  
night

1-6

13-28

Bring Books tomorrow

