

# LESSON 4.2

## ADD AND SUBTRACT POLYNOMIALS

Goal: To identify , evaluate and use operations with expression/polynomials.

Obj: SWBAT add and subtract polynomials.

**PROBLEM 1:** $-8 - 6$ 

Add or subtract the polynomials.

$$(2x^2 - 8 - 8x^4) - (6 + 4x^4 + 7x^3)$$

$$\cancel{2x^2} \quad \boxed{-8} \quad \boxed{-8x^4} \quad \boxed{-6} \quad \boxed{-4x^4} \quad -7x^3$$

$$2x^2 - 14 - 12x^4 - 7x^3$$

**PROBLEM 1A:**

Add or subtract the polynomials.

$$(3x^2 + x^3 - 8) + (7x^3 + 6 + 3x^2)$$

Handwritten work showing the addition of the two polynomials. The terms are grouped as follows:

$$\boxed{3x^2} + \boxed{+1x^3} - \underline{8} + \boxed{+7x^3} + \underline{6} + \boxed{+3x^2}$$

 $-8 + 6$ 

$$6x^2 + 8x^3 - 2$$

**PROBLEM 1B:**

Add or subtract the polynomials.

$$(-8x^4 + 5x^2 + 4) - (8 - 6x^2 + x^4)$$

$-8x^4 + 5x^2 + 4 - 8 + 6x^2 - 1x^4$

$-9x^4 + 11x^2 - 4$

**PROBLEM 2:**

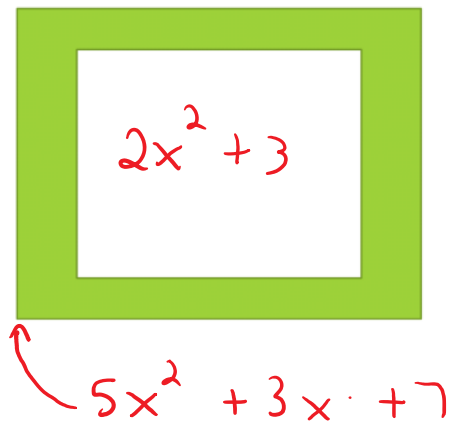
The area of the large rectangle is  $5x^2 + 3x + 7$  and the area small rectangle is  $2x^2 + 3$ . What is the area of the shaded green region as a polynomial?

$$(5x^2 + 3x + 7) - (2x^2 + 3)$$

$$\boxed{5x^2} + 3x \oplus 7 \quad \boxed{-2x^2} \ominus 3$$

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

area of the  
green shaded  
region



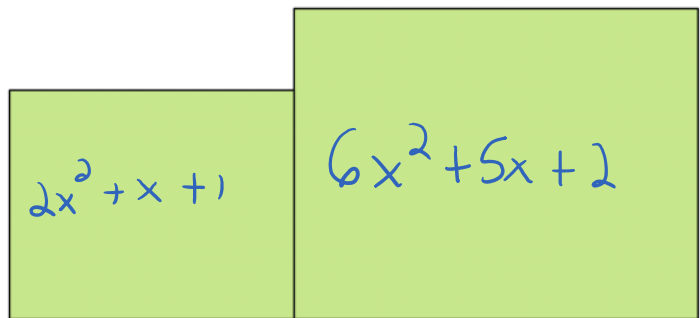
**PROBLEM 2A:**

The area of the large rectangle is  $6x^2 + 5x + 2$  and the area small rectangle is  $2x^2 + x + 1$ . What is the area of the ~~combined~~ both rectangles.

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

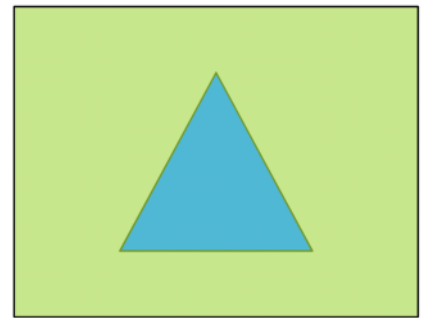
$$\boxed{2x^2} + \boxed{1x} + \boxed{1} + \boxed{6x^2} + \boxed{5x} + \boxed{2}$$

$$\boxed{8x^2 + 6x + 3}$$



**PROBLEM 2B:**

The area of the large rectangle is  $8x^2 - 7x + 6$  and the area triangle is  $5x^2 + 9$ . What is the area of the shaded green region?



## TRY THESE PROBLEMS ON YOUR OWN!

Add or Subtract Polynomials.

$$1) (7x^4 - 4 + 3x) - (6x + 3 - 2x^4) = 9x^4 - 3x - 7$$

$$2) (8m^2 - 7 - 8m^4) - (5 + 2m^4 - 7m^2) = -10m^4 + 15m^2 - 12$$

$$3) (5 + 7x^4 - 3x^2) + (7 + 4x^2 - 5x^4) = 2x^4 + 1x^2 + 12$$



## TRY THESE PROBLEMS ON YOUR OWN!

Add or Subtract Polynomials.

$$1) (2x^4 + x^3 + 5) + (5 + x^3 - 4x^4) - 2x^4 + 2x^3 + 10$$

$$2) (2n^4 + 2n^3 - 3n) - (6n^4 - n - 5n^3) - 4n^4 + 7n^3 - 2n$$

$$3) (6x^3 + 6 - 5x^2) + (1 + 2x^2 - 4x^3) - 2x^3 - 3x^2 + 7$$

### PROBLEM 3:

Jimmy has a garden with a length of 7 feet and a width of 6 feet.  
What is the area of the garden?



**PROBLEM 3A:**

Rebecca has a garden with a length of  $3x$  feet and a width of  $4x^3$  feet. What is the area of the garden?



### PROBLEM 3B:

Multiplying Polynomials.

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



$$3x(4x - 6)$$



### PROBLEM 3B:

Multiplying Polynomials.

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



$$5(2x + 4)$$

