

## 12.1 SUMMARY -2

*Simplify each expression (Skills Practice 31-40)*

<p><b>Adding Polynomials:</b> Simplify the expression by using addition (+)</p>
<p><b>Like Terms:</b> terms that have same variable and the same exponent <math>4x^2 + 2x^2 = 6x^2</math></p>

<ol style="list-style-type: none"> <li>1. Take away ( )</li> <li>2. Group/Add like terms</li> <li>3. <u>Write in descending order.</u></li> </ol> <p style="text-align: center;">**WHEN YOU ADD OR SUBTRACT EXPONENTS STAY THE SAME!</p>	<p><b>Example:</b></p> $(2x^3 - 6x + 5) + (3x^5 + 4x^3 - 7x - 9)$ $2x^3 + 4x^3 - 6x - 7x + 5 - 9 + 3x^5$ $6x^3 - 13x - 4 + 3x^5$ <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> <math>3x^5 + 6x^3 - 13x - 4</math> </div>
--	--

**Example 3:**

a)  $(m^2 + 3m - 2) + (4m^2 - 2m + 5)$

$$5m^2 + m + 3$$

b)  $(2p^3 + p - 5) + (p^2 + p + 6)$

$$2p^3 + p^2 + 2p + 1$$

c)  $(4x^3 + x^5 - 6x + 7) + (2x^3 - 7x + 3x^5 - 8)$

$$4x^5 + 6x^3 - 13x - 1$$

12.1 SUMMARY - 3

Subtracting Polynomials:

- Change subtraction to addition
- distribute the negative

1. Distribute the "-"
2. Group/Add like terms
3. Write in descending order.

★ \*\*WHEN YOU ADD OR SUBTRACT EXPONENTS STAY THE SAME! ★

Example:

$$(2x^3 - 6x + 5) - (3x^5 + 4x^3 - 7x - 9)$$

$$2x^3 - 6x + 5 - 3x^5 - 4x^3 + 7x + 9$$

$$2x^3 - 4x^3 - 6x + 7x + 5 + 9 - 3x^5$$

$$-2x^3 + x + 14 - 3x^5$$

$$-3x^5 - 2x^3 + x + 14$$

Examples:

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

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

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

$$-3x^2 - 7x - 8$$

b)  $(m^2 + 3m + 5) - (3m^2 + 2m - 3)$

$$-2m^2 + m + 8$$

c)  $(4p^2 - 6p^3 + 4p^4 - 6) - (8 + 2p^3 - 6p^4)$   
 (Tricky! Watch the order!)

$$10p^4 - 8p^3 + 4p^2 - 14$$

### board practice!

$$1) \quad (\underline{2m^6} + 3m) + (\underline{2m^6} + 7)$$
$$4m^6 + 3m + 7$$

$$2) \quad (1x^4 + 3x^2 - 7) + (3x^4 + 2x^2 - 10)$$
$$4x^4 + 5x^2 - 17$$

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

$$4x^4 - 3x^3 + 2 + 2x^4 - 7$$

$$6x^4 - 3x^3 - 5$$

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

$$3x^3 - 2x^2 + 7x - 4x^3 - 5x^2 + 3x$$

$$\boxed{-x^3 - 7x^2 + 10x}$$

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

~~0x^4~~                       $4x^4 - 4x^4 = 0x^4$

$$8x^5 - 5x^3 + 7$$

$$6) \quad (3x^3 - 2x^2 + x) - (4x^3 + 7x^2 + 11)$$