

## **Section 11-4:**

# **Combining Like Terms with Exponents**

## **Objectives:**

- **To combine like terms when exponents are involved.**

## Review:

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

$$6x + 3$$

$$(8y) + 4 + (-3y)$$

$$5y + 4$$

**Like terms must have the same variable and the same exponent.**

## Are the following like terms?

**4x and 3** No, 3 doesn't have an  $x$

**4x and 3y** No, diff. variables

**4x and 3x<sup>2</sup>** No, diff. exponents

**4x and 3x** Yes

Ex 1:

$$\textcircled{4x} + 3x^2 + \textcircled{+2x} + \underline{7}$$

Like Terms

Constant

$$6x + 3x^2 + 7$$

$$\textcircled{3x^2 + 6x + 7}$$

Ex 2:

$$1b^4 - 3b^2 + 2b^4 - 6 + 5$$

$$3b^4 - 3b^2 - 1$$

Ex 3:

$$5hp - 3 + 4ph - 6$$

$= 4hp$   
↓

$$9hp - 9$$



Ex 4:

$$\textcircled{m}(2 - 4m) - 3m + 5$$

$$m \cdot 2 \quad m \cdot 4m$$

$$\textcircled{2m} - 4m^2 \textcircled{-3m} + 5$$

$$\textcircled{-4m^2 - m + 5}$$

$$1. \quad (5x^2) + 2(3x^2)$$

$$8x^2 + 2$$

$$2. \quad (3)(1+5p) + 6p^2 - 1$$

$$(3) + 15p + 6p^2 - 1$$

$$6p^2 + 15p + 2$$

3.  $6xy - 9 - 2yx$

$$4xy - 9$$

4.  $n(1+5n)+10$

$$n + 5n^2 + 10$$

$$5n^2 + n + 10$$

5.  $9h^3 + 3h - 7h^3 + 4h$

$$2h^3 + 7h$$

6.  $3m + 6m^2 + 3m - 4m^2$

$$6m + 2m^2$$

$$2m^2 + 6m$$

$$7. \quad 9 + 6u^2 + 3z + 8u^2 - z$$

$$14u^2 + 2z + 9$$

$$8. \quad -5(x^2 - 9) - 6x^2$$

$$-5x^2 + 45 - 6x^2$$

$$-11x^2 + 45$$

$$9. 3t^2 + v - t + 7v^2$$

Simplified

$$10. 4(5h^2 - 3) + 2h^2$$
$$20h^2 - 12 + 2h^2$$
$$22h^2 - 12$$