

# Notes 1-2

## Sec 1 H

## Polynomials & Exponents

## Unit 1

- Monomial: An expression with only 1 term  $5x$   $2xyz$
- Polynomial: An expression with more than 1 term.

- Term: are pieces of a polynomial broken up by + or - signs.

Find the sum.

Ex. 1:  $(7x^2 - 1x + 15) + (6x + 12)$

$$7x^2 + 5x + 27$$

Ex. 2:  $(3x^3 + 2x^2 - x - 7) + (x^3 - 10x^2 + 8)$

$$4x^3 - 8x^2 - x + 1$$

Combine Like Terms.

Find the difference.

Ex. 3:  $(x^5 + 8) - (3x^5 + 5x)$

Distribute the subtract (negative)

$$-2x^5 - 5x + 8$$

Ex. 4:  $(3x^3 + 8x^2 - x - 5) - (5x^3 + x^2 + 17)$

$$-2x^3 + 7x^2 - x - 22$$

Find the product.

Ex. 5:  $-3(2x - 7)$

$$-6x + 21$$

Ex. 8:  $3y^2(y^3 + 5y + 7)$

$$3y^2 \cdot y^3 \quad 3y^2 \cdot 5y \quad 3y^2 \cdot 7$$

$$3y^5 + 15y^3 + 21y^2$$

Ex. 9:  $x(6x - 7)$

$$6x^2 - 7x$$

Ex. 6:  $(x + 3)(x - 8)$

$$x^2 - 8x + 3x - 24$$

$$x^2 - 5x - 24$$

Ex. 7:  $(x - 4)^2$

$$(x - 4)(x - 4)$$

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

$$x^2 - 8x + 16$$

Ex. 10:  $(2x - 1)(x + 18)$

$$2x^2 + 36x - 1x - 18$$

$$2x^2 + 35x - 18$$

Properties of Exponents

Simplify.

$$\text{Ex. 11: } 2^3 \cdot 2^4 = 2^7$$

$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$$

$$\text{Ex. 12: } (2^3)^4 = 2^{12}$$

$$2^3 \cdot 2^3 \cdot 2^3 \cdot 2^3$$

$$\text{Ex. 13: } \frac{2^7}{2^4} = \frac{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}{2 \cdot 2 \cdot 2 \cdot 2}$$

$$2^3 = 2^{7-4}$$

$$\text{Ex. 14: } \frac{2^4}{2^7} = \frac{1}{2^3}$$

$$2^{4-7} = 2^{-3}$$

$$\text{Ex. 15: } \left(\frac{2^3}{3^4}\right)^3$$

$$\frac{2}{3} \cdot \frac{2}{3} \cdot \frac{2}{3} = \frac{2^3}{3^3}$$

$$\text{Ex. 16: } 2^0 = 1$$

$$\text{Ex. 17: } \frac{3^{-2}}{1} = \frac{1}{3^2}$$

Simplify.

$$\text{Ex. 18: } x^5 y x^3$$

$$x^5 \cdot y \cdot x^3$$

$$x^5 \cdot x^3 \cdot y = x^8 y$$

$$\text{Ex. 19: } \frac{7a^2 b^7}{14a^5 b^4} = \frac{1 b^3}{2a^3}$$

$$a^{2-5} = a^{-3}$$

$$\text{Ex. 20: } (2x^3 y^2)^4$$

$$2^4 x^{12} y^8$$

$$\text{Ex. 21: } \frac{x^{-4}}{x^3} = \frac{1}{x^3 x^4} = \frac{1}{x^7}$$

$$\text{Ex. 22: } 7x^0$$

$$7 \cdot 1 = 7$$