

Date: _____

Unit 3: Polynomials

3.1 Like Terms & Distribution

Recall from Math 9

Term: An algebraic expression consisting of the product of a coefficient and one or more variables
 ex. $3x^2$, $-2xy$, z , $5x^0$ (constant term)

Monomial: A one term algebraic expression

ex. $2y^3$, $5x$, $2z$, $\frac{x}{2}$

Binomial: A two term expression

ex. $2x + 3y$, $2x - 1$

Trinomial: A three term expression

ex. $2x + yx^2 - 2$, $5x^2 + 7x^3 - 2x$

Degree: The largest exponent OR exponent sum found in a term

$2x + x^2y - 2$
 degree 1 $d=3$ $d=0$ Trinomial is degree 3

Like Terms: Terms that differ only by their coefficient.

Ex. Simplify. State type and degree of each polynomial answer.

a) $[2x] + 3[-y] - 5 + 3x[-2y]$
 $= [5x - 3y - 2]$ Trinomial Degree 1

b) $[x^2] + 4x - 3[-x] + 2x^2$
 $= [3x^2 + 3x - 3]$ Trinomial Degree 2

c) $[-3x^2] + 2xy^2 + x^2[-1] - 4x^2y + 5xy^2 + 3$
 $= -2x^2 + 7xy^2 - 4x^2y + 2$ Polynomial Degree 3
 $= [-4x^2y + 7xy^2 - 2x^2 + 2]$

Distribution: To multiply a monomial with a polynomial, multiply each term of the polynomial by the monomial

Ex. Simplify. State type and degree of each polynomial answer.

$$\begin{aligned} \text{a) } 3(5x+2) &= 3(5x) + 3(2) \\ &= \boxed{15x + 6} \end{aligned}$$

Binomial
 $D = 1$

$$\begin{aligned} \text{b) } 5 - 2(x+1) \\ &= 5 - 2x - 2 \\ &= \boxed{-2x + 3} \end{aligned}$$

Binomial
 $D = 1$

$$\begin{aligned} \text{c) } 3x^2(2x^3 - 3x + 1) \\ &= \boxed{6x^5 - 9x^3 + 3x^2} \end{aligned}$$

Trinomial
 $D = 5$

$$\begin{aligned} \text{d) } -3x^2y + 4y(2 - x^2) - 2y \\ &= \boxed{-3x^2y + 8y - 4x^2y - 2y} \\ &= \boxed{-7x^2y + 6y} \end{aligned}$$

Binomial
 $D = 3$

$$\begin{aligned} \text{e) } 1(2x - 5z + y) - 1(7x + 4y - 2z) \\ &= 2x - 5z + y - 7x - 4y + 2z \\ &= \boxed{-5x - 3y - 3z} \end{aligned}$$

Trinomial
 $D = 1$

$$\begin{aligned} \text{f) } 4x(2x+1) - (3x+1) + (x^2-2) \\ &= 8x^2 + 4x - 3x - 1 + x^2 - 2 \\ &= \boxed{9x^2 + x - 3} \end{aligned}$$

Trinomial
 $D = 2$

Practice: Worksheets/ on sheet, write down answers & solve the puzzles to check