

$$2x + y + z \quad 2x + y - z \quad 2x + y - 3$$

Focus:

1. To be able to multiply a polynomial by a monomial.

Curricular Competencies:

C3: I can use proper math vocabulary and language



Multiplying Monomials

Remember the exponent rules for multiplying and dividing?

$$x^a \cdot x^b = x^{a+b}$$

$$\frac{x^a}{x^b} = x^{a-b}$$

Multiply the following:

$$3(4x^2)$$

$$12x^2$$

$$(2zy)(-7xy)$$

$$-14zy^2x$$

$$(-4x^3yz)(-2x^3y^2z^2)$$

$$8x^6y^3z^3$$

$$(3abc)(-4abc)(2abc)$$

$$-24a^3b^3c^3$$

Multiplying Polynomials

The fundamental principle guiding the multiplication of polynomials is the distributive property. It states that each term of one polynomial must be multiplied by each term in all other polynomials being multiplied together.

$$A(x + y + z) = Ax + Ay + Az$$

To apply the distributive property, expand the brackets and then simplify or collect like terms.

Expand and simplify the following:

$$3(x - 2y + 3z)$$

$$3x - 6y + 9z$$

$$2a(4a^2 - 3a + 7)$$

$$8a^3 - 6a^2 + 14a$$

$$(5p^3 - 2p^2 + p - 1)(-7p)$$

$$-35p^4 + 14p^3 - 7p^2 + 7p$$

Multiplying Polynomials Part 2

These problems are slightly more challenging. They require using order of operations.

distribute to get rid of brackets
add or subtract as required
simplify by collecting like terms

$$\begin{aligned} & 2(x+3) + 4(2x-1) \\ & 2x+6+8x-4 \\ & 10x+2 \end{aligned}$$

$$\begin{aligned} & 3a(2a^2b - ab + b^2) - 6b(a^3 + 3ab - 5b^2) \\ & \underline{6a^3b} - \underline{3a^2b} + \underline{3ab^2} - \underline{6a^3b} - \underline{18ab^2} + \underline{30b^3} \\ & \quad -3a^2b - 15a^2b + 30b^3 \end{aligned}$$

$$\begin{aligned} & (x-2) - (3x+4) \\ & -2x-6 \end{aligned}$$
$$\begin{aligned} & (x-2) - (3x+4) \\ & x-2-3x-4 \\ & -2x-6 \end{aligned}$$

$$\begin{aligned} & (3-2y) - (-4+y) \\ & 3-2y+4-y \\ & 7-3y \end{aligned}$$

Dividing Polynomials

$$\frac{16xy^2}{-4xy}$$

$$-4y$$

$$\frac{24x^2-18xy}{3x}$$

$$8x-6y$$

assignment: Prerequisite Skills w/s, Polynomial Review w/s