

3.1 Simplifying Algebraic Expressions

Recall

An **algebraic expression** is a combination of operations on variables and numbers.

Ex 1. $3x^2 + xy - 2 - 4xy - 7 + x^2$ **Ex 2.** $7x^2 - 9$

Terms :

Variable Term :

Constant Term :

Coefficient :

Like Terms :

* Distributive Property

Multiplication distributes over addition or subtraction.

1. $a(x + y) = a \cdot x + a \cdot y$

2. $a(x - y) = a \cdot x - a \cdot y$

Ex 1. Perform indicated operations.

a. $8(y + 2)$

b. $-3(7a - 5)$

c. $-(-5 + 4z)$

* Simplifying Algebraic Expressions

To simplify algebraic expressions

1. Use distributive property

2. Combine like terms

Ex 2. Simplify.

a. $5(2y - 3) - 8$

b. $-4z + 5(3 + 6z)$

c. $-7(x - 1) + 5(2x + 3)$

d. $-(-7d - 1) - 3d + 12$

e. $5(2x + 6) - (-9 - 13x)$

f. $11x - (21 - 14x) - 2(9x + 16)$

*** Finding Perimeter and Area**

Perimeter of Triangle

$$P = a + b + c$$

Perimeter of Rectangle

$$P = 2L + 2W$$

Area of Triangle

$$A = \frac{1}{2} \cdot b \cdot h$$

Area of Rectangle

$$A = L \times W$$

Area of Square (length and width are same)

$$A = L \times W$$

Ex 3. The length of rectangular garden is $12y + 9$ yards, and its width is 3 yards. Find the perimeter and area of the rectangular garden.

Ex 4. The base of a triangle is $8 - 6z$ feet and its height is 5 feet. Find the area of the triangle.