Name _____ Date _____ Class_____

LESSON 10-3

Generating Equivalent Expressions

Look at the following expressions: $x = 1x$
$x + x = 2x$
$x + x + x = 3x$

The numbers 1, 2, and 3 are called **coefficients** of x.

Identify each coefficient.

1. $8x$ ___ 2. $3m$ ___ 3. y ___ 4. $14t$ ___

An algebraic expression has terms that are separated by + and –.
In the expression $2x + 5y$, the **terms** are $2x$ and $5y$.

Expression	Terms
$8x + 4y$	$8x$ and $4y$
$5m - 2m + 9$	$5m$, $-2m$, and 9
$4a^2 - 2b + c - 2a^2$	$4a^2$, $-2b$, c, and $-2a^2$

Sometimes the terms of an expression can be combined.
Only **like terms** can be combined.

$2x + 2y$ NOT like terms, the variables are different.

$4a^2 - 2a$ NOT like terms, the exponents are different.

$5m - 2m$ Like terms, the variables and exponents are both the same.

$n^3 + 2n^3$ Like terms, the variables and exponents are both the same.

To **simplify** an expression, combine like terms by adding or subtracting the coefficients of the variable.

$\mathbf{5}m \mathbf{-} \mathbf{2}m = \mathbf{3}m$

$4a^2 + \mathbf{5}a + \boldsymbol{a} + 3 = 4a^2 + \mathbf{6}a + 3$ Note that the coefficient of a is 1.

Simplify.

5. $8x + 2x$ _____
6. $3m - m$ _____
7. $6y + 6y$ _____
8. $14t - 3t$ _____
9. $3b + b + 6$ _____
10. $9a - 3a + 4$ _____
11. $n + 5n - 3c$ _____
12. $12d - 2d + e$ _____

Answers

1. 8
2. 3
3. 1
4. 14
5. $10x$
6. $2m$
7. $12y$
8. $11t$
9. $4b + 6$
10. $6a + 4$
11. $6n - 3c$
12. $10d + e$