Day 2

1.2 Algebraic Expressions

variable (letter that represents a #)

constant (# with no letter)

coefficient (# in front of a variable)

terms (are separated by plus and minus signs)

(ex) $2x + 3y + 5$ coefficients: 2, 3

5 ↑ constant

terms: $2x, 3y, 5$

Simplify: means combine like terms, perform all operations until you can't go any further.

(ex) Simplify. $(40+24) \div 8 - (2^3+1)$

$8+1$

$64 \div 8 - 9$

$8 - 9$

-1

P ( ) [ ] { }
E xponents
m ultiply or ÷
A dd or S ubtract

order OF operations

Simplify by combining like terms.

$x^2 + x$ done

$x^2 + 2x^2 = 3x^2$

$1x + 1x = 2x$

$x \cdot x = x^2$

$1x - 1x = \cancel{0x}$
$= 0$

Only Add or subtract coefficients of like terms.

Do NOT add exponents!

(1) $5a - 1a = 4a$

(2) $5 + 10x - 8x = 5 + 2x$ or $2x + 5$

(3) $6m + 3n + 2m - 4n = 8m - n$

(4) $x^2 + 3xy - 4x^2 + 5xy - xy = -3x^2 + 7xy$

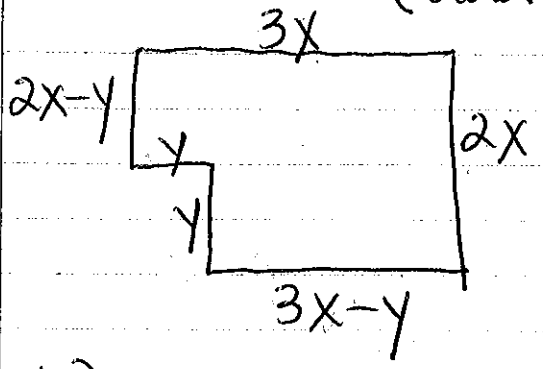
(5) $3y - (4y + 6x) = -y - 6x$
$3y - 4y - 6x$

(6) $-3(2x + 1) - 8$

$-6x - 3 - 8 = -6x - 11$

p.14 Quick ✓ #5

a) Perimeter: Distance Around an object (add up all the sides)



$P = 2x - y + y + y + 3x - y + 2x + 3x$

$P = 10x$

b.) $P = 2c + 3c + 2c + d + d + d +$

$$\frac{6c-2d}{3} + \frac{3c-d}{3}$$

$$P = 7c + 3d + \frac{9c-3d}{3}$$

$$7c + 3d + 3c - 1d$$

$$P = 10c + 2d$$

Evaluating. Substitute the value of each variable into the expression and then simplify. can combine like terms 1st!

p.15

(1) $4a + 7b + 3a - 2b + 2a$; $a = -5$ $b = 3$

$9a + 5b$

$9(-5) + 5(3)$ → $-45 + 15$

-30

$K = -1$
$n = -2$

(4) $-K^2 - (3K - 5n) + 4n$

$-K^2 - 3K + 5n + 4n$

$-1 \cdot K^2 - 3K + 9n$

$-1(-1)^2 - 3(-1) + 9(-2)$

$-1(1)$

$-1 + 3 - 18 = -16$

$x = 7$
$y = -7$

(7) $-5(x + 2y) + 15(x + 2y)$

$-5x - 10y + 15x + 30y$

$10x + 20y$

$10(7) + 20(-7)$

$70 + -140$

-70

Name _____ Class _____ Date _____

Practice 1-2

Algebraic Expressions

Simplify by combining like terms.

1. $6x + x$
2. $11t + 3t - 5$
3. $-6a - 5a + b - 1$
4. $5i + 7j - 3i$
5. $16xy - 4xy$
6. $5x - 3x^2 + 16x^2$
7. $3(m - 2) + m$
8. $\frac{3(a - b)}{9} + \frac{4}{9}b$
9. $t + \frac{t^2}{2} + t^2 + t$
10. $4a - 5(a + 1)$
11. $2(m - n^2) - 6(n^2 + 3m)$
12. $x(x - y) + y(y - x)$
13. The expression $6s^2$ represents the surface area of a cube with edges of length s. Find the surface area of a cube with each edge length.
    a. 3 inches
    b. 1.5 meters
14. The expression $4.95 + 0.07x$ models a household's monthly long-distance charges, where x represents the number of minutes of long-distance calls during the month. Find the monthly charges for 73 minutes.

Evaluate each expression for the given value of the variable.

15. $5y^2 + y + 1; y = 4$
16. $a + 6 + 3a; a = 5$
17. $-t^2 - (3t + 2); t = 5$
18. $i^2 - 5(i^3 - i^2); i = 7$
19. $k + 2 - 4k - 1; k = -3$
20. $6a - 3a^2 - 2a^3; a = 1$
21. $-m(2m + m^2); m = -4$
22. $3 - 2n - 5 + n^2; n = -3$
23. $12b - 3 + b^2; b = 9$
24. $a^2 + b^2; a = 3, b = 4$
25. $c(3 - a) - c^2; a = 4, c = -1$
26. $-a^2 + 3(d - 2a); a = 2, d = -3$
27. Write an expression for the perimeter of the figure as the sum of the lengths of its sides. Then simplify your answer.