4-2 Simplifying Algebraic Expressions

Term
- part of algebraic expression
- seperated by addition and subtraction symbols.

$3x + 7 + 1x + 2$

broken up by + and − signs

sign goes the # it is in front of

coefficient: # with the variable

constants

(if there is no coefficient written it is = 1.)

constants - numbers that stand alone

like terms

terms that are exactly alike

(contain the same variables)

$$\begin{array}{r} 2n \\ +\ 5n \\ \hline 7n \end{array} \qquad \begin{array}{r} 2n \\ -5n \\ \hline -3n \end{array}$$

$6xy$
$4xy$

$6x^2y$
$6xy$
unlike

$5x + 3 + 7x + 4$

combine like terms

$5x + 7x = 12x$

$3 + 4 = 7$

$12x + 7$

$$6x|-2y|+x|-5$$

$$6x+x-2y-5$$

$$7x-2y-5$$

3c.)

$$4(q+8p)+p$$

$$4q+32p+1p$$

$$4q+33p$$

Simplified
no parenthesis
no like terms remaining

$$-5m + (-1)$$
$$-5m - 1$$

Ex 3 c.)

$$6y - 3(x - 2y)$$

$$6y - 3x + 6y$$

$$-3x + 12y$$

40) $\frac{2}{3}(6a+3b) - \frac{1}{2}(a-2b)$

$\frac{2}{3}\cdot\frac{6}{1}a + \frac{2}{3}\cdot\frac{3}{1}b \quad -\frac{1}{2}a \quad -\frac{1}{2}\cdot\frac{-2}{1}b$

$4a + 2b \quad -\frac{1}{2}a \quad +1b$

$3\frac{1}{2}a + 3b$

44.)

$$-\frac{3}{4}(3x+2y) \quad -\frac{3}{8}(x+3y)$$

$$-\frac{3}{4}\cdot\frac{3}{1}x - \frac{3}{\cancel{4}_{2}}\cdot\frac{\cancel{2}^{1}}{1}y \quad -\frac{3}{8}x \quad -\frac{3}{8}\cdot\frac{-3}{1}y$$

$$-\frac{9}{4}x \quad -\frac{3}{2}y \quad -\frac{3}{8}x \quad +\frac{9}{8}y$$

$$-\frac{3\times 4-12}{2\times 4}y$$

Rename common denominator.

$$-\frac{21}{8}x - \frac{3}{8}y$$

$$\boxed{-2\frac{5}{8}x - \frac{3}{8}y}$$

Reduce fraction parts

$$-\frac{9\times 2}{4\times 2}=\frac{-18}{8}$$