

Write each expression as an algebraic expression

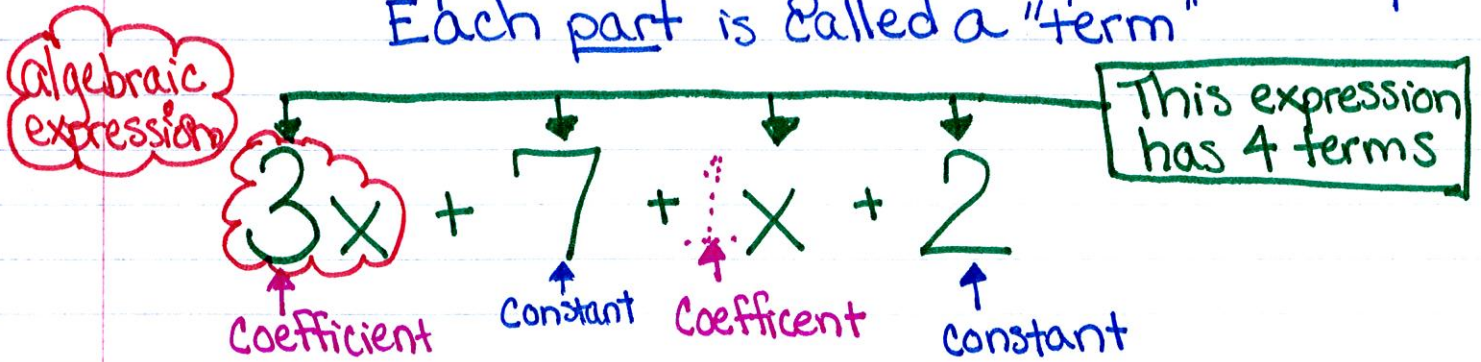
ex: $-5(n-8) = -5n - 5 \cdot 8$
 $-5n + 40$
 $\boxed{-5n + 40}$

ex: $(a+9)6 = 6a + 6 \cdot 9$
 $6a + 54$

Lesson 4-2 (pg 178-183)

10/25/11 Simplifying Algebraic Expressions

Term: when addition or subtraction signs separate an algebraic expression into parts. Each part is called a "term".



Coefficient: the number in front of the algebraic expression

ex: $9r$

ex: $-d$

ex: m

The coefficient is "-1" for the term d because $-d = -1d$ (it's understood)

coefficient is "+1"

Like terms: terms that contain the same variables OR the numeric expressions

ex: $2n + 6y + 5n + 2y + 7$

like terms (pointing to $2n$ and $5n$)

like terms (pointing to $6y$ and $2y$)

Constant: a term without a variable

Identify the terms, like terms, coefficients, & constants:

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

Terms: $6x, -2y, x, -5$

Like Terms: $6x, x$

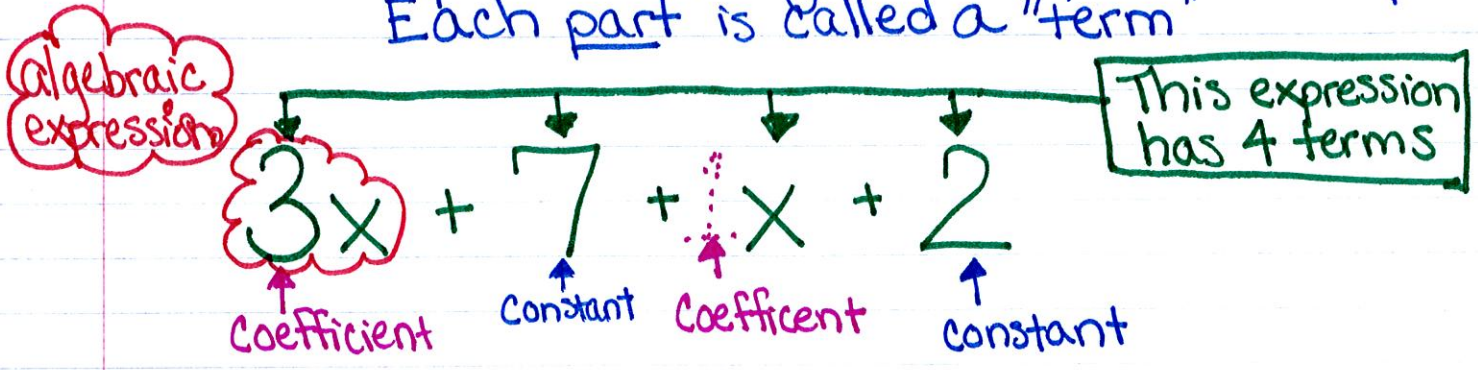
Coefficients: $6, -2, 1$

Constants: -5

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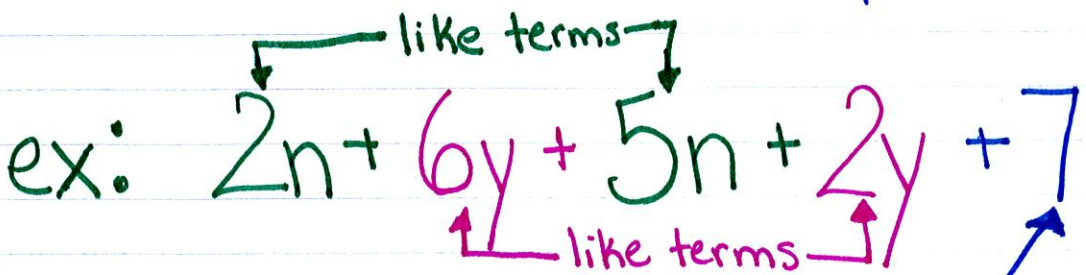
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Identify the terms, like terms, coefficients, & constants.

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Terms: $6x, -2y, x, -5$

Like Terms: $6x, x$

Coefficients: $6, -2, 1$

Constants: -5

Simplify each expression

ex: $\cancel{7x} + 4 - \cancel{5x} - 8$
 $2x - 4$

① Find the like terms
(include the sign in front)

② Add the like terms
* algebraic terms 1st listed in alphabetical order
* constant is last

ex: $4a - 3b - 7a - 3b$
 $-6b - 3a \dots -3a - 6b$

ex: $4a - 6 - 2(a - 1)$
 $4a - 6 - 2a + 2$
 $2a - 4$

Use the Distributive Property for the parentheses before combining like terms 😊

Lesson 4-3

10/27/11 Adding & Subtracting Equations (p184-189)

Equation: 2 equal expressions



$$\begin{array}{r} z + 6 = -5 \\ \hline z = -11 \end{array}$$

Don't forget the summation bar

Balance the equation by "undoing" the operation with the variable on **BOTH** sides

$$\begin{array}{r} \text{ex: } x - 8 = -3 \\ \hline x = 5 \end{array}$$

$$\begin{array}{r} \text{ex: } y + 12 = 0 \\ \hline y = -12 \end{array}$$

$$\begin{array}{r} \text{ex: } p - 9 = 33 \\ \hline p = 42 \end{array}$$



$$\begin{array}{r} p - 9 = 33 \\ \hline p = 42 \end{array}$$

Lesson 4-4

10/28/11 Multiplying & Dividing Equations (p191-196)

ex: $\frac{8y}{8} = \frac{56}{8}$

$y = 7$

* Use division/fraction bar

Perform the same operation on **BOTH** sides of the equation

OR

ex: $(\frac{1}{8})y = 56(\frac{1}{8})$
 $y = 7$

The reciprocal of 8 is $\frac{1}{8}$. because

$$\frac{8}{1} \times \frac{1}{8} = 1$$

Division is the same as multiplying by the reciprocal!

ex: $(\frac{4}{3})\frac{3}{4}a = 12(\frac{4}{3})$
 $a = 16$

$$\frac{12}{1} \times \frac{4}{3} = \frac{16}{1}$$

ex: $\frac{\cancel{(20)}Z}{\cancel{20}} = -1(20)$

$$Z = -20$$

... Use parentheses to show the multiplication

... No ÷

... Yes → fraction bar ☺

ex: $\frac{\cancel{(-6)}P}{\cancel{-6}} = -3(-6)$

$$P = 18$$

Lesson 4-5

10/31/11 Solving Two-Step Equations (p199-201)

$$\begin{aligned}
 3 \times 8 + 9 & \\
 24 + 9 & \\
 33 &
 \end{aligned}$$

$$\begin{aligned}
 9 + 3 \times 8 & \\
 9 + 24 & \\
 33 &
 \end{aligned}$$

Use order of operations
PEMDAS

ex: $3a + 9 = 33$

$$\begin{aligned}
 3a + 9 &= 33 \\
 \underline{-9} &\quad \underline{-9} \\
 3a &= 24
 \end{aligned}$$

$$\begin{aligned}
 \frac{3a}{3} &= \frac{24}{3} \\
 a &= 8
 \end{aligned}$$

To unwrap the variable, go backwards in the order of operations

ex: $\frac{p}{5} + 12 = 20$

$$\begin{aligned}
 \frac{p}{5} + 12 &= 20 \\
 \underline{-12} &\quad \underline{-12} \\
 \frac{p}{5} &= 8
 \end{aligned}$$

$$\begin{aligned}
 (5) \frac{p}{5} &= 32 (5) \\
 p &= 160
 \end{aligned}$$

Self check

$$\begin{aligned}
 \frac{160}{5} - 12 & \\
 32 - 12 & \\
 20 & \text{ 😊}
 \end{aligned}$$

REINFORCED

ex: $\cancel{9} - 1t = -34$

$$\begin{array}{r} \cancel{9} - 1t = -34 \\ -9 \\ \hline \end{array}$$

$$\begin{array}{r} -1t = -43 \\ -1 \\ \hline \end{array}$$

$$\boxed{t = 43}$$

REINFORCED

REINFORCED

ex: $\textcircled{2x} + \textcircled{x} - 27 = 3$

$$\begin{array}{r} 2x + x - 27 = 3 \\ 3x - 27 = 3 \\ + 27 \\ \hline \end{array}$$

$$\begin{array}{r} 3x = 30 \\ 3 \\ \hline \end{array}$$

$$\boxed{x = 10}$$

If you can combine like terms before beginning the process of solving for the variable, DO SO 😊

REINFORCED

ex: $4 - 9c + 3c = 58$

$$\begin{array}{r} 4 - 9c + 3c = 58 \\ -6c + 4 = 58 \\ -4 \\ \hline \end{array}$$

$$\begin{array}{r} -6c = 54 \\ -6 \\ \hline \end{array}$$

$$\boxed{c = -9}$$

REINFORCED

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Lesson 4-5 (p 199-201)

||3|| Solving Multi-Step Equations

ex: $2 + 3(2x - 5) = 11$

$2 + 6x - 15 = 11$

$6x - 13 = 11$

$6x = 24$

$x = 4$

Must Distribute to rid the problem of the parenthesis first

Must combine like terms before balancing the equation

ex: $2 - 3(2x - 5) = 11$

$2 - 6x + 15 = 11$

$-6x + 17 = 11$

$-6x = -6$

$x = 1$

Lesson 4-6

11/9/11 Writing Equations (p 205-206)

Words: Thirteen plus a number **is** twice that number.

Symbols: $13 + n = 2n$

Hints:

- Find the connecting verb... It splits the sentence into 2 expressions. *(This is the "=" sign)*
- "a number" means a variable
- Write it how you read it, except for flip phrases *(than from)*

ex1 Tyler has 6 shirts. This ⁽⁶⁾ **is** four ^{flip phrase} less than twice the number of shirts n that Quinton has.

$$6 = 2n - 4$$

Dissect the sentence!

ex2 **8** ^{flip phrase} more than the quotient of a number y and -3 **is** -24 .

$$\frac{y}{-3} + 8 = -24$$

ex3 Caleb has 13 baseball cards, which **is** 7 ^{flip phrase} more than 3 times the number Nate has.

$$13 = 3n + 7$$