# Unit 1: Linear Equations

## Day 2: Simplifying Algebraic Expressions

Today we will...

1. Review the language used in algebra
2. Review simplifying algebraic expressions

VARIABLE: " a letter that represents a number"

TERM: " a number or variable or the product of a number and a variable" (ie; 4, 4x, x)

LikeTERM: " two terms where the variable and the exponent on the variable are identical "

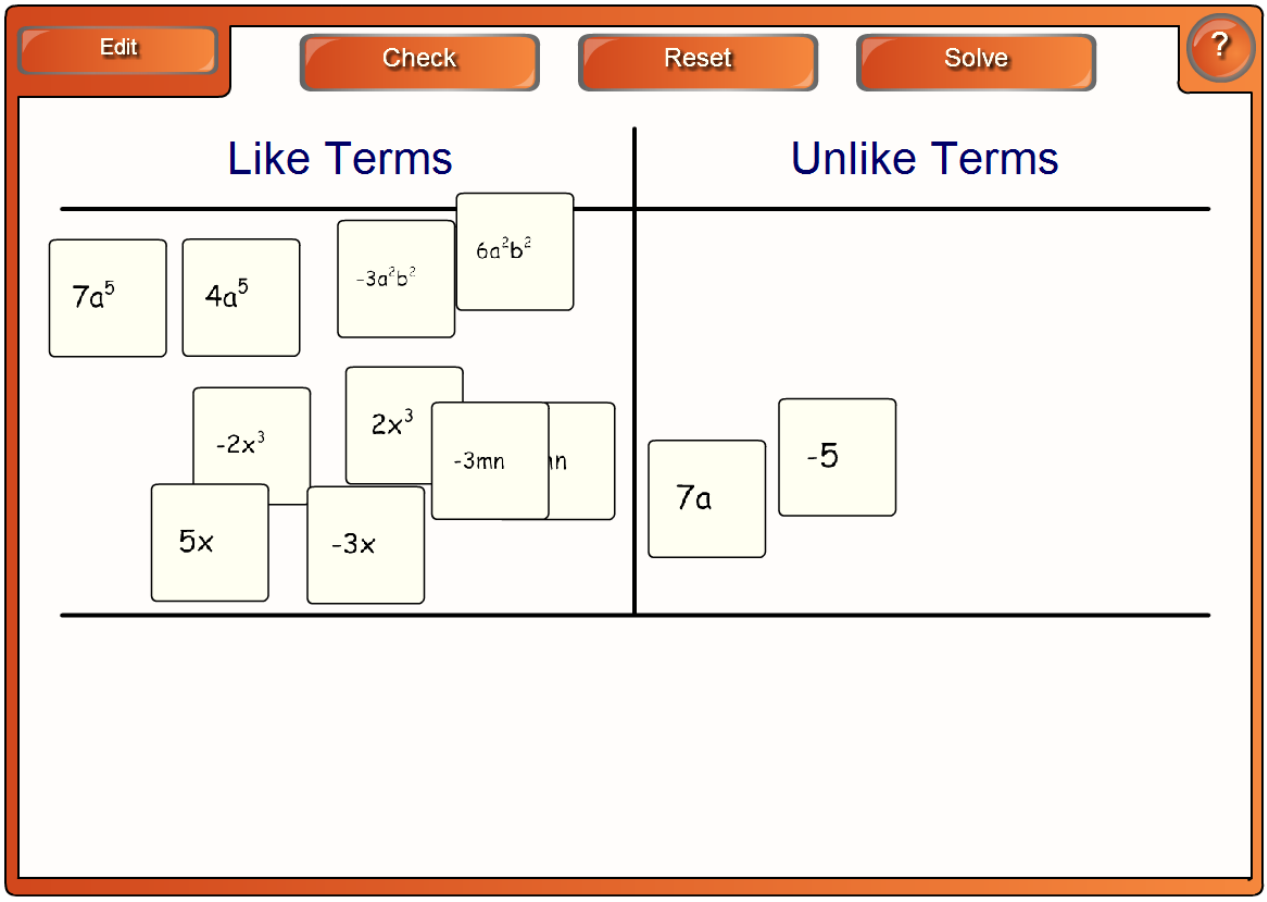
Examples:

- x and 2x - Like
- x and $x^2$ - UNLike
- ab and 2ab - Like
- $a^2b$ and $ab^2$ - UNLike

In the term 3x

coefficient variable

# Group the like terms and unlike terms.



- add or subtract like terms only
- apply integer rules to the coefficients of like terms

Example: Collect the like terms and simplify:

a) $5x - 3x$

$= 2x$

b) $-3mn + 5mn - 8mn$

$= 2mn - 8mn$

$= -6mn$

c) $2k - (9k-2)$ (changes all the signs in the brackets)

$= 2k - 9k + 2$

$= -7k + 2$

d) $3x^2 + 5x - 9x + 7$

$= 3x^2 - 4x + 7$

e) $3a^3 + b^3 - 6a^2b - a^3 + 6ab^2 + a^2b$

$= 3a^3 - a^3 + b^3 - 6a^2b + a^2b + 6ab^2$

$= 2a^3 + b^3 - 5a^2b + 6ab^2$

f) $8(2x+3) - 7x$

| | $2x$ | $+3$ |
|---|---|---|
| $8$ | $16x$ | $+24$ |

$= 8(2x) + 8(+3) - 7x$

$= 16x + 24 - 7x$

$= 16x - 7x + 24$

$= 9x + 24$

# Try these!

1. $5x + 2 + 3x + 4$

$= 5x + 3x + 2 + 4$

$= 8x + 6$

✓ ✓

2. $3a^2 - 2ab - 2b^2 - 2a^2 - ab + b^2$

$= 3a^2 - 2a^2 - 2ab - ab - 2b^2 + b^2$

$= a^2 - 3ab - b^2$

3. $4y - (2y + 1)$

$= 4y - 2y - 1$

$= 2y - 1$

4. $-(6t - 2v) - 8t - v$

$= -6t + 2v - 8t - v$

$= -6t - 8t + 2v - v$

$= -14t + v$

5. $4(3a + 1) - (5a - 8)$

$= 4(3a) + 4(1) - 5a + 8$

$= 12a + 4 - 5a + 8$

$= 12a - 5a + 4 + 8$

$= 7a + 12$

6. $3x - 2(x + 7) + 5(-x - 1)$

$= 3x - 2(x) - 2(7) + 5(-x) + 5(-1)$

$= 3x - 2x - 14 - 5x - 5$

$= 3x - 2x - 5x - 14 - 5$

$= -4x - 19$

For the rest of the class work on:

Textbook:

Page 152 #3, #4

Page 439 #1, #2

If you get finished, hand in your work.

If you don't get finished, you must complete the work at home and hand it in at the beginning of next class. You can find the homework page questions on the website, or take a picture of the questions with your phone. Textbooks do not go home!!