

Like Terms and Expanding (Lesson).notebook

WARM-UP

Solve the following fraction expressions:

$$\begin{array}{l} \text{a) } \frac{1 \times 4}{3 \times 4} + \frac{2 \times 3}{4 \times 3} \\ = \frac{4}{12} + \frac{6}{12} \\ = \frac{10}{12} = \boxed{\frac{5}{6}} \end{array} \quad \begin{array}{l} \text{b) } \frac{2}{5} \times \frac{6}{2} \\ = \frac{12}{10} \\ = \boxed{\frac{6}{5}} \end{array}$$

UNIT 1: Solving Algebraic Equations Like Terms and Expanding

Learning Goal:

I will learn how to use distributive property and collect like terms.



Lesson: Like Terms and Expanding

Like Terms: Like terms have the same **variables and exponents**. You can only add and subtract **like terms**.

Examples:

Like Terms	NOT Like Terms
7x and -5x	7x and 5
10x ² and 24x ²	10x ² and 24x
3xy and 7xy	3xy and 7yz
5x ² y and 3x ² y	5x ² y and 3xy ²
x and 4x	x and 4

Same variables AND exponents

Do NOT have same variables AND exponents

A Bag of Mixed Terms



- Move your desks to form a group of 4-5 people
- Each group will be given a bag of terms
- With your group, you must put all the "like terms" together

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Combining Like Terms

1. Simplify the following expressions (Hint: add the "like terms")

a) $4x - 2x + 3 - 1 + x - 6$ b) $4 + 4r - 2 + 3r + 5z - 2$ c) $k - 5t - 6k + 2t$

$$\begin{aligned}
 &= 4x - 2x + x + 3 - 1 - 6 && = k - 6k - 5t + 2t \\
 &= \boxed{3x - 4} && = \boxed{-5k - 3t} \\
 &\quad \downarrow && \\
 &= 4 - 2 + 4r + 3r + 5z - 2 && \\
 &= \boxed{2 + 7r + 4z} &&
 \end{aligned}$$

Expanding & Simplifying

To expand, you use the **distributive property** (the "rainbow effect") by multiplying the term **outside the brackets** by each term **inside the brackets**. Then **collect like terms**.

2. Expand and simplify the following expressions:

$$\begin{aligned}
 \text{a) } 3(x+2) &= \boxed{3x+6} & \text{b) } 2(q+3) + 11q &= 2q+6+11q = \boxed{13q+6} \\
 \text{c) } -2(e-7) - 4(-3e+5) &= -2e+14+12e-20 = \boxed{10e-6}
 \end{aligned}$$

UNIT 1: Solving Algebraic Equations

Like Terms and Expanding

Learning Goal:

I will learn how to use the distribute property and collect like terms.

Success Criteria:

To be successful, I must be able to...

- Add and subtract like terms that have the same variable and exponents
- Expand by multiplying the outside term by each term inside the bracket

Example:

$$3(a-1) - 2(3a+5)$$

Collect Like Terms \rightarrow

$$\begin{aligned}
 &= 3a - 3 - 6a - 10 \\
 &= \underline{-3a} - 13
 \end{aligned}$$

Homework:

Like Terms and Expanding
Worksheet #1-12