

Name: _____ Period: _____

Combining Like Terms in Algebraic Expressions

Sometimes when solving algebraically, equations can look very messy and complicated.

However, it is possible to “clean up” these equations to make solving easier.

In this lesson, we will be learning about how to _____ equations to make them easier to solve.

What is a “Like Term”?

We actually combine “like terms” in real life every day.

For example, 5 apples + 3 apples = _____ .

In this case, both “terms” are _____ so we are able to combine them.

We can take this a step further and show what we just did algebraically:

Let $a =$

$$5a + 3a = \underline{\hspace{2cm}}$$

What if the Terms are Not “Like Terms”?

$$6 \text{ bananas} + 3 \text{ apples} = \underline{\hspace{2cm}}$$

What happened when you tried to add them together? Could you combine these? If so, explain how you did it, if not explain why not.

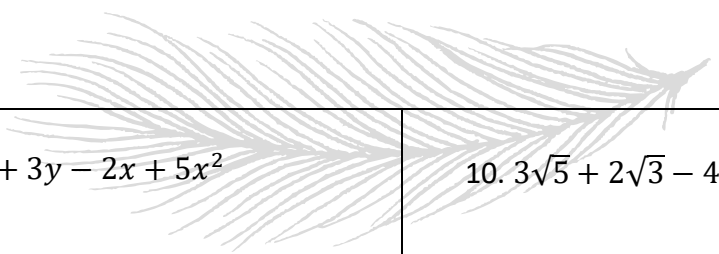
Now, let's show this algebraically:



Practice Problems

Directions: Choose one color highlighter for each unique term. Highlight all **like terms** using the same color, then simplify each expression as much as possible showing all necessary steps. If the expression cannot be simplified explain why.

1. $3 \text{ apples} + 4 \text{ pears} - 2 \text{ apples}$	2. $3x + 5y - 2x + 2y$
3. $3a + 7z + 2b - a - 3z + b$	4. $2x - 10z + 3x + 5z - 2x$
5. $3 \text{ fifths} - 2 \text{ thirds} + 2 \text{ fifths}$	6. $\frac{3}{5} - \frac{2}{3} + \frac{2}{5}$
7. $2x^2 - x + 3$	8. $4x^2 - 2x + 3x^2 + x - 1$



9. $3y^2 - 2x^2 + 3y - 2x + 5x^2$	10. $3\sqrt{5} + 2\sqrt{3} - 4\sqrt{5} + 7\sqrt{3} - 3$
11. $7\sqrt{20} + 4\sqrt{5} + 3\sqrt{5}$	12. $30\sqrt{x} + 5\sqrt{y} - 13y^{\frac{1}{2}} + x^{\frac{1}{2}}$
13. $5x^3 + 5x + 12x^2 - 2x^3 + 15x - x^2$	14. $2\sqrt[5]{x} + 3\sqrt[5]{y} + 4x^{\frac{1}{5}} - 5y^{\frac{1}{5}}$
15. $\frac{4}{5}x + \frac{2}{5}x - \frac{2}{10}x + \frac{2}{3}y - \frac{1}{6}y$	16. $6a^6 - 7a^5 - a^6 + 17a^5 - 2a^3$
17. $\frac{1}{3}x^2 + 2x - \frac{5}{3}y^2 - 10x^2$	18. $3\pi + 4\pi - 22\pi + 5\sqrt{2} - 10\sqrt{8} + 15\sqrt{2}$