In the previous tutorial, we explored like terms.

$$12n \quad 7 \quad 5n \quad 4$$

In this tutorial, we'll <u>combine</u> like terms to simplify an expression.

$$12n + 7 + 5n + 4$$

Let's begin by recalling what we already know about <u>identifying</u> like terms…

How do you identify like terms?

How would you explain your thinking as you identify the like terms in the expression shown below?

$$12n + 7 + 5n + 4$$

Now that you've identified the like terms, how will you combine the like terms? What are you being asked to do when *simplifying an expression by combining like terms?*

$$12n + 7 + 5n + 4$$

Let's change our expression by rewriting some of the addition operations as subtraction. How might this adjustment influence <u>identifying</u> the like terms?

$$12n - 7 - 5n + 4$$

Now that you've carefully identified the like terms, how will <u>you begin to combine and simplify</u>?

$$12n - 7 - 5n + 4$$

Let's review and compare the solution paths used for simplifying each of the previous expressions…

$$12n + 7 + 5n + 4$$
$$12n - 7 - 5n + 4$$

How would you describe your solutions for simplifying each expression as the same?

In what ways are your solutions for simplifying each expression different?

Let's consider another expression…

$$12n^2 - 7n + 5n^2 - n$$

How might this expression change your thinking as you identify the like terms?

What additional information regarding the coefficients must you understand as you prepare to combine the like terms and simplify this expression?

A student is getting ready to simplify this expression by combining the like terms. What calculation error could the student make by not understanding $-n$ is $-1n$?

$$12n^2 + 5n^2 - 7n - n$$

The student has simplified the expression.
What calculation error have they made?

How would you explain the correct solution?

$$12n^2 + 5n^2 - 7n - n$$
$$17n^2 \quad -6n$$

☑ I can define like terms

☑ I can identify like terms

☑ I can explain how I simplify an expression by combining like terms

☑ I can combine like terms that have positive and negative coefficients