Hi, this is Anthony Varela. And today, we're going to talk about terms and factors in algebraic expressions. So we're going to look at different types of algebraic expressions. And then we're going to look at the components that make up algebraic expressions. And then we're going to practice combining like terms in algebraic expressions.

So let's start out by an example of what an algebraic expression might look like. So here we have 3x squared. This is an algebraic expression. So an algebraic expression is a combination of numbers, variables, and operators representing a quantity.

So here, I see the number 3. I see the variable x. I see x being raised to the power of 2. So that's an operation here. And this contains a variable. So a variable is a quantity that can change. And it's expressed as a letter or a symbol. So here we have the variable x.

And we see that x is being multiplied by itself. And then it's being multiplied by 3. And those are all what we call factors. And a factor is a number or quantity used in multiplication. So this is made up of the factor 3. And then we have two factors of x.

And 3x squared is an algebraic expression containing one term. And a term is a collection of numbers, variables, and powers combined through multiplication. So since all of these are being multiplied together, this equals one term. And we call an algebraic expression containing only one term a monomial. So mono equals 1. So a monomial is one term.

Well, let's take a look at 3x squared plus 7. And we call this algebraic expression a binomial. It has two terms. One term is 3x squared. And the other term is 7.

So let's talk more about these two terms. Well, we have a constant term. And this is a term with no variable component. So this is a constant. There are no variables that are being attached to this term.

Now we also have a coefficient in our x squared term. And this is the number in front of a variable term that acts as a factor or a multiplier. And so we should note also that we talk about these terms using their variable power.

So this 3x squared term, we call it the x squared term. We call it that because we see the variable x. And x is raised to the power of 2. So 3 is a coefficient to the x squared term. 7 doesn't have a variable component, so we call that a constant.

Well, here is another algebraic expression. And this is made up of one, two, three terms. So we could call it a trinomial because it has three terms. But we can also say that this is a polynomial. It's an expression containing several terms.

So it's not a monomial because it has more than one term. It's not a binomial because it doesn't have exactly two terms, but it's a polynomial. It has several terms. And let's go ahead and identify then the terms, constants, and coefficients in this algebraic expression.

So remember, a term, we're looking for numbers, variables, and powers that are all connected through multiplication. So here is a term. Here is a term. And here is a term. Notice that they're separated by addition or subtraction.

So our terms here are 3x squared, 5x, and 7. So notice we have an x squared term. We have an x term. And then we have a constant term, no variable at all.

So that leads us into our next category here. What are the constants in this expression? Well, we just have one constant. That would be 7 because there's no variable component there.

Now do we have coefficients? Remember, coefficients are the numbers that are in front of our variable or variable powers. So we have two coefficients-- 3 and 5. 3 is the coefficient of our x squared term. 5 is the coefficient of our x term. So there are the terms, constants, and coefficients for this expression.

Now let's talk about combining like terms. So let's take this expression as an example. We have quite a few terms here. There's 3x squared plus 5x minus 2x plus 2x squared plus 2.

So what we mean by combining like terms-- we're looking for terms that have the same variable and the same variable power. So let's go ahead and identify like terms. So here in green, we have like terms because they are both x squared terms. They have different coefficients, but they're both x squared terms.

We have another set of like terms here highlighted in blue. 5x and 2x are like terms because they are both x terms. And then here our constant 2 doesn't have any other terms that are also constant. So that doesn't have any like terms in this expression.

So when we combine like terms, what we're doing is adding or subtracting the coefficients, depending on if they're in a positive or negative. So what I'm thinking then is I'm just going to be adding or subtracting these coefficients. So taking a look at our like terms 3x squared and 2x squared, I can just

add 3 and 2 to get 5.

And then looking at our like terms 5x and 2x, I'm going to take 5 minus 2 because we have subtraction here and get 3. And these are going to be our coefficients in our combined terms. So here's what it looks like when you've combined all of our like terms-- 5x squared plus 3x plus 2.

And once again, I've got 5x squared by adding these two terms. I got 3x by adding these two terms. And I subtracted the coefficients due to this negative. And then I have my plus 2. So when we're combining like terms or adding our coefficients, and a negative coefficient then tells you you need to subtract.

So let's review our notes for terms and factors in algebraic expressions. We talked about a couple of different algebraic expressions. We looked at a monomial containing only one term. We looked at a binomial containing two terms. And we saw a polynomial, which has several terms.

We looked at terms, factors, coefficients, and constants in algebraic expressions. And then we talked about combining like terms. So to look for like terms, you're looking for the same variable and variable power within a term.

And you can combine like terms by adding those coefficients. And remember, if there is a negative coefficient, that's the same thing as subtracting. So thanks for watching this video on "Terms and Factors in Algebraic Expressions." Hope to see you next time.