

High School Algebra Playlist: Parts of an Expression

Aligns with [CCSS.Math.Content.HSA.SSE.A.1.a](#): Interpret parts of an expression, such as terms, factors, and coefficients.

Related Standards

- [CCSS.Math.Content.HSA.SSE.A.1](#): Interpret expressions that represent a quantity in terms of its context.
- [CCSS.Math.Content.HSA.SSE.A.1.b](#): Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P .*
- [CCSS.Math.Content.HSA.CED.A.1](#): Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*

PREVIEW



Objectives

In this module, you will learn and practice the following skills:

- parse a mathematical expression into its components
- understand how components are combined to make an expression with mathematical meaning

Let's get started!

Key Terms

- An **equation** is a mathematical sentence that says that two expressions are equal.
- An **expression** is a mathematical phrase that contains terms that are added and subtracted.
- A **term** describes the parts of an expression that are added or subtracted; each term contains two or more factors.
- A **factor** is a number that is multiplied by another number or by an expression to make a product.
- A **variable** is a letter that is used to represent a number
- A **coefficient** is the number part of a term.
- A **constant** is a term with a number part but no variable part.

Connections

- <https://openstaxcollege.org/textbooks/algebra-and-trigonometry>; section 1.7



Parts of an Expression

(HSA.SSE.A.1.a)

An equation is a mathematical sentence that says that two expressions are equal. An expression is a mathematical phrase that contains terms that are added and subtracted. A term describes the parts of an expression that are added or subtracted; each term contains two or more factors. A factor is a number that is multiplied by another number or by an expression to make a product. A variable is a letter that is used to represent a number. A coefficient is the number part of a term. A constant is a term with a number part but no variable part.

If your students...

Mishandle a coefficient of “1”:

It is very common for students to have trouble with mathematical short-hand expressions and to forget that a variable term such as n actually is a term with two factors, a coefficient of 1 and a variable n . Then, they have difficulties when combining like terms in an expression such as $n+3n$. You can ask, “How many n are there?” or rephrase the question in terms of the original problem – perhaps “How many nectarines are there?” Some students may benefit from writing the coefficient, making $1n$, so that all terms follow a regular structure with two or more factors; then, they more easily see that $1n+3n=4n$ and that “1 n plus 3 more n equals 4 n ” or that “one nectarine plus three more nectarines equals four nectarines”.

Mishandle order of operations:

Students can have trouble with the order of operations when there are hidden multiplications in an expression. Remind students that an expression such as $2+3(x+1)$ is not equivalent to $5(x+1)$. Emphasize that the expression $2+3(x+1)$ consists of two terms: a constant term 2 (with no variable part) and a second term with two factors, 3 and $x+1$. It may help students to write the multiplication explicitly, as $2+3\cdot(x+1)$, or to split the expression into terms along its additions and subtractions:

$$\underbrace{2}_{\text{term}} + \underbrace{3(x+1)}_{\text{term}}$$

