

Interpret the structure of expressions. Extend to polynomial and rational expressions (Standards A.SSE.1–2).	
Standard A.SSE.1: Interpret polynomial and rational expressions that represent a quantity in terms of its context. ★	
<ul style="list-style-type: none"> a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complex expressions by viewing one or more of their parts as a single entity. <i>For example, examine the behavior of $P(1+r/n)^{nt}$ as n becomes large.</i> 	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Interpret the parts of an expression, such as terms, factors, coefficients, exponents, quotients, divisors, dividends, remainders, and constants. • Explain the meaning of the parts of an expression as they relate to the entire expression and to the context of the problem (for example, the Fundamental Theorem of Algebra and the end behavior of rational functions) 	
Related Standards: Current Course	Related Standards: Future Courses
III.A.SSE.1 , III.A.SSE.2 , III.A.SSE.4 , III.A.CED.2 , II.A.CED.4 , III.A.APR.3 , III.A.APR.5 , III.F.IF.8 , III.F.BF.3 , III.F.LE.4 , III.F.TF.5 , III.A.APR.4 , III.A.APR.6	P.F.IF.7 , P.F.IF.10 , P.F.BF.1

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Identifying the parts of a linear, exponential or quadratic expression, such as terms, factors, and coefficient (I.A.SSE.1, II.A.SSE.1) • Determining the real-world context of the variables, factors, or terms in an expression (I.A.SSE.1, II.A.SSE.1) • Understand that rewriting an expression can highlight quantities (7.EE.2)
Academic Vocabulary
factors, coefficients, terms, exponent, base, constant, variable
Resources
Curriculum Resources : https://www.uen.org/core/core.do?courseNum=5630#71587

Interpret the structure of expressions. Extend to polynomial and rational expressions (Standards A.SSE.1–2).	
Standard A.SSE.2: Use the structure of an expression to identify ways to rewrite it. <i>For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.</i>	
Concepts and Skills to Master	
<ul style="list-style-type: none"> Rewrite expressions using structure to identify important components of the expression (extend from Secondary Mathematics II to include function types in this course). 	
Related Standards: Current Course	Related Standards: Future Courses
III.A.CED.4 , III.A.SSE.1 , III.A.SSE.2 , III.A.APR.4 , III.A.APR.5 , III.A.APR.7 , III.N.CN.8 , III.F.IF.7c , III.F.IF.8	P.F.IF.7d

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> Use the structure of expressions to rewrite them (II.A.SSE.2) Apply properties of operations (commutative, associative, distributive) to generate equivalent expressions (6.EE.3) Understand that rewriting an expression in different forms can shed light on the problem and how the quantities in it are related (7.EE.2) Expand expressions using the distributive property (8.EE.7b)
Academic Vocabulary
Resources
Curriculum Resources : https://www.uen.org/core/core.do?courseNum=5630#71590

Write expressions in equivalent forms to solve problems (Standards A.SSE.4).	
Standard A.SSE.4: Understand the formula for the sum of a series and use the formula to solve problems.	
<ul style="list-style-type: none"> a. Derive the formula for the sum of an arithmetic series. b. Derive the formula for the sum of a geometric series, and use the formula to solve problems. Extend to infinite geometric series. <i>For example, calculate mortgage payments.</i> ★ 	
Concepts and Skills to Master	
<ul style="list-style-type: none"> • Derive the formula for the sum of an arithmetic series and use it in context. • Derive the formula for the sum of a geometric series and use it in context. Extend to include infinite geometric series. 	
Related Standards: Current Course	Related Standards: Future Courses
III.A.APR.1	P.F.IF.10 , P.F.IF.11

Support for Teachers

Critical Background Knowledge
<ul style="list-style-type: none"> • Writing arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations and be able to distinguish between arithmetic and geometric sequences (I.F.BF.2, I.F.IF.3, I.F.LE.1, I.F.LE.2) • Determine a recursive process and recognize that a quadratic function is the sum of linear terms (II.F.BF.1a)
Academic Vocabulary
summation notation, Σ , sequence, series, infinite, finite, term
Resources
Curriculum Resources : https://www.uen.org/core/core.do?courseNum=5630#71592