

<p>MAFS.912.A-SSE.2.3</p> <p>Also assesses MAFS.912.A-SSE.1.1</p> <p>Also assesses MAFS.912.A-SSE.1.2</p>	<p>Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.</p> <ol style="list-style-type: none"> <li>Factor a quadratic expression to reveal the zeros of the function it defines.</li> <li>Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.</li> <li>Use the properties of exponents to transform expressions for exponential functions. <i>For example, the expression <math>1.15^t</math> can be rewritten as <math>(1.15^{1/12})^{12} \approx (1.012)^{12t}</math> to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.</i></li> </ol> <p>Interpret expressions that represent a quantity in terms of its context.</p> <ol style="list-style-type: none"> <li>Interpret parts of an expression, such as terms, factors, and coefficients.</li> <li>Interpret complicated expressions by viewing one or more of their parts as a single entity. <i>For example, interpret <math>P(1+r)^n</math> as the product of <math>P</math> and a factor not depending on <math>P</math>.</i></li> </ol> <p>Use the structure of an expression to identify ways to rewrite it. <i>For example, see <math>x^4 - y^4</math> as <math>(x^2)^2 - (y^2)^2</math>, thus recognizing it as a difference of squares that can be factored as <math>(x^2 - y^2)(x^2 + y^2)</math>.</i></p>
<p>Item Types</p>	<p>Editing Task Choice – May require choosing equivalent forms of an expression or an interpretation of a parameter.</p> <p>Equation Editor – May require creating an equivalent expression or numerical response.</p> <p>GRID – May require dragging and dropping steps in completing the square of a quadratic expression, or in rewriting an expression using algebraic structure.</p> <p>Hot Text – May require dragging terms, factors, coefficients, or expressions to complete an equivalent expression or to complete an interpretation.</p> <p>Matching Item – May require matching equivalent expressions.</p> <p>Multiple Choice – May require selecting an expression or a value from a set of options.</p> <p>Multiselect – May require selecting expressions or values from a set of options.</p> <p>Open Response – May require constructing a written response.</p>
<p>Clarifications</p>	<p>Students will use equivalent forms of a quadratic expression to interpret the expression's terms, factors, zeros, maximum, minimum, coefficients, or parts in terms of the real-world situation the expression represents.</p>

	<p>Students will use equivalent forms of an exponential expression to interpret the expression’s terms, factors, coefficients, or parts in terms of the real-world situation the expression represents.</p> <p>Students will rewrite algebraic expressions in different equivalent forms by recognizing the expression’s structure.</p> <p>Students will rewrite algebraic expressions in different equivalent forms using factoring techniques (e.g., common factors, grouping, the difference of two squares, the sum or difference of two cubes, or a combination of methods to factor completely) or simplifying expressions (e.g., combining like terms, using the distributive property, and other operations with polynomials).</p>
<p>Assessment Limits</p>	<p>In items that require the student to transform a quadratic equation to vertex form, the coefficient of the linear term must be an even factor of the coefficient of the quadratic term.</p> <p>For A-SSE.1.1, items should not ask the student to interpret zeros, the vertex, or axis of symmetry when the quadratic expression is in the form <math>ax^2 + bx + c</math> (see F-IF.3.8).</p> <p>For A-SSE.2.3b and A-SSE.1.1, exponential expressions are limited to simple growth and decay. If the number <math>e</math> is used then its approximate value should be given in the stem.</p> <p>For A-SSE.2.3a and A-SSE.1.1, quadratic expressions should be univariate.</p> <p>For A-SSE.2.3b, items should only ask the student to interpret the <math>y</math>-value of the vertex within a real-world context.</p> <p>For A-SSE.2.3, items should require the student to choose how to rewrite the expression.</p> <p>In items that require the student to write equivalent expressions by factoring, the given expression may have integral common factors, be a difference of two squares up to a degree of 4, be a quadratic, <math>ax^2 + bx + c</math>, where <math>a &gt; 0</math> and <math>a</math>, <math>b</math>, and <math>c</math> are integers, or be a polynomial of four terms with a leading coefficient of 1 and highest degree of 3.</p>
<p>Stimulus Attributes</p>	<p>Items assessing A-SSE.2.3 and A-SSE.1.1 must be set in a real-world context.</p> <p>Items that require an equivalent expression found by factoring may be in a real-world or mathematical context.</p> <p>Items should contain expressions only.</p>

Algebra 1 EOC Item Specifications  
Florida Standards Assessments

Response Attributes	Items may require the student to choose an appropriate level of accuracy.  Items may require the student to choose and interpret units.  For A-SSE.1.1 and A-SSE.2.3, items may require the student to apply the basic modeling cycle.
Calculator	Neutral

Sample Item	Item Type
Hot Text – Selectable	
<p>Sue removes the plug from a trough to drain the water inside. The volume, in gallons, in the trough after it has been unplugged can be modeled by <math>4t^2 - 32t + 63</math>, where <math>t</math> is time, in minutes.</p> <p>A. Click on the correct property that will give Sue the amount of time it takes the trough to drain.</p> <ul style="list-style-type: none"><li>• minimum</li><li>• maximum</li><li>• y-intercept</li><li>• zero</li></ul> <p>B. Click on the expression that will reveal the property.</p> <ul style="list-style-type: none"><li>• <math>4(0)^2 - 32(0) + 63</math></li><li>• <math>(2t - 7)(2t - 9)</math></li><li>• <math>4(t - 4)^2 - 1</math></li><li>• <math>4(t - 8)^2 + 47</math></li></ul>	