Create equations that describe numbers or relationships. Extend work on linear and exponential equations to quadratic equations (Standards A.CED.1–2, 4)	
Standard II.A.CED.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.	
Concepts and Skills to Master	
• Create linear, exponential, and quadratic equations and inequalities in one variable and use them to solve problems. • Show solutions to inequalities using set notation, interval notation, and inequalities. • Use properties of exponents to solve exponential equations and inequalities, limit to situations requiring evaluation of exponential functions at integer inputs (solving more complicated exponential functions using Logarithms occurs in Secondary Mathematics III)	
Related Standards: Current Course	Related Standards: Future Courses
II.REI.4	III.A.CED.1, III.A.REI.2, III.A.APR.2, III.A.APR.3

Support for Teachers

Critical Background Knowledge
• Create linear and exponential equations and inequalities in one variable and use them to solve problems (I.A.CED.1) • Create and solve linear equations (6.EE.7, 7.EE.4a, 8.EE.7, I.A.CED.1 and I.A.REI.3). • Solve inequalities and use inequality notation (6.EE.8, 7.EE.4b, and 8.EE.7) • Understand and use properties of exponents (8.EE.1) • Solve exponential equations that can be solved using laws of exponents (I.A.CED.1 and I.A.REI.3). • Write recursive and explicit equations (I.F.BF.1a, I.F.BF.2)
Academic Vocabulary
Resources
Curriculum Resources: http://www.uen.org/core/core.do?courseNum=5620#71503

Create equations that describe numbers or relationships. Extend work on linear and exponential equations to quadratic equations (Standards A.CED.1–2, 4)	
Standard II.A.CED.2: Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	
Concepts and Skills to Master	
• Create and graph an equation to represent a linear, exponential, or quadratic relationship between two quantities. • Create linear, exponential, and quadratic equations from various models. • Graph equations on coordinate axes with appropriate labels and scales.	
Related Standards: Current Course	Related Standards: Future Courses
II.A.CED.1, II.A.SSE.1, II.A.SSE.2, II.A.SSE.3, II.F.IF.4, II.F.IF.5, II.F.IF.7, II.F.BF.1, II.F.BF.3, II.F.LE.3	III.A.CED.1, III.A.SSE.1, III.A.SSE.2, III.A.SSE.4, III.F.IF.4, III.F.IF.5, III.F.IF.7, III.F.BF.1, III.F.BF.3, III.F.LE.3, P.A.REI.8, P.A.REI.9

Support for Teachers

Critical Background Knowledge
• Create and graph linear and exponential equations, labeling axes and scale (I.A.CED.2) • All things linear and exponential (Secondary Mathematics I) • Choose appropriate scales and label a graph (I.N.Q.1 and I.N.Q.2) • Construct a function to model a linear relationship between two quantities (8.F.4) • Describe qualitatively the relationship between two quantities by analyzing a graph (8.F.5)
Academic Vocabulary
dependent variable, independent variable,
Resources
Curriculum Resources: http://www.uen.org/core/core.do?courseNum=5620#71503

Create equations that describe numbers or relationships. Extend work on linear and exponential equations to quadratic equations (Standards A.CED.1–2, 4)	
Standard II.A.CED.4: Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations; extend to formulas involving squared variables. *For example, rearrange the formula for the volume of a cylinder* $V = \pi r^2 h$.	
Concepts and Skills to Master	
• Extend the concepts used in solving numerical equations to rearranging formulas for a particular variable; limit to linear and any quadratic formulas	
Related Standards: Current Course	Related Standards: Future Courses
II.A.SSE.2, II.A.SSE.3, II.A.CED.1, II.A.CED.2, II.F.IF.8, II.G.GMD.1, II.G.GMD.3	III.A.CED.4, III.F.IF.8, III.A.SSE.1

Support for Teachers

Critical Background Knowledge
• Solve quadratic equation in one variable (II.A.REI.4) • Interpreting parts of expressions (I.A.SSE.1, II.A.SSE.1)
Academic Vocabulary
constant, variable, formula, literal equation
Resources
Curriculum Resources: http://www.uen.org/core/core.do?courseNum=5620#71503