Catholic Schools
DIOCESE of DALLAS

Describing Linear Functions	Unit	CHECKPOINT		
		1	2	3
A.3 Linear functions, equations, and inequalities. The student writes and represents linear functions in multiple ways, with and without technology. The student demonstrates how sound logical arguments and other processes of mathematics are foundational to its discipline. *				

Catholic Identity Standards (Ways to Grow)

A.1A	recognize that every human life is sacred because each person is created and loved by God*
A.1B	describe ways to take part in/be responsible to the community by discerning and using our God-given gifts*
A.1C	recognize and oppose unjust social structures and work toward justice for all*
A.1D	see God at work in all things and as expressed in the sacraments*
A.1E	connect scripture, tradition, and the models of Mary and the saints to guide, grow, and deepen faith*

Learning Process Standards (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
A.2A apply math in everyday situations				
A.2B use problem-solving models				
A.2C exhibit habits of thinking quantitatively *				

Content	Unit	CHECKPOINT		
		1	2	3
Describing Linear Functions				
A.3A	graph linear functions on the coordinate plane and identify key features, including x-intercept, y-intercept, zeros, and slope, in mathematical and real-world problems			
A.3A.1	determine the domain and range of a linear function in mathematical problems; determine reasonable domain and range values for real-world situations, both continuous and discrete; and represent domain and range using inequalities			
A.3A.2	determine the effects on the graph of the parent function $f(x) = x$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x - c)$, $f(bx)$ for specific values of a, b, c, and d			
A.3A.3	calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association			
A.3A.4	evaluate functions, expressed in function notation, given one or more elements in their domains			

Learning Process Standards (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
A.2D create representations				
A.2E analyze information				
A.2F develop lines of inquiry to determine truth or falsehood *				

Writing and Solving Linear Equations	Unit	CHECKPOINT		
		1	2	3
A.3 Linear functions, equations, and inequalities. The student writes and represents linear functions in multiple ways, with and without technology.				

Catholic Identity Standards (Ways to Grow)

A.1A	recognize that every human life is sacred because each person is created and loved by God*
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Learning Process Standards (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
A.2A apply math in everyday situations				
A.2B use problem-solving models				
A.2C exhibit habits of thinking quantitatively *				

Content	Unit	CHECKPOINT		
		1	2	3
Writing Linear Equations				
A.3B	write linear equations in two variables given a table of values, a graph, and a verbal description				
A.3B.1	write linear equations in two variables in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$, given one point and the slope and given two points			
A.3B.2	write the equation of a line that contains a given point and is parallel to a given line			
A.3B.3	write the equation of a line that contains a given point and is perpendicular to a given line			
A.3B.4	write an equation of a line that is parallel or perpendicular to the x- or y-axis and determine whether the slope of the line is zero or undefined			
A.3B.5	determine the slope of a line given a table of values, a graph, two points on the line, and an equation written in various forms, including $y = mx + b$, $Ax + By = C$, and $y - y_1 = m(x - x_1)$			
A.3B.6	write a formula for the nth term of arithmetic sequences, given the value of several of their terms			

Solving Linear Equations				
A.3C	solve linear equations in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides			
A.3C.1	write and solve equations involving direct variation			
A.3C.2	solve mathematic and scientific formulas, and other literal equations, for a specified variable			

Learning Process Standards (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
A.2D create representations				
A.2E analyze information				
A.2F develop lines of inquiry to determine truth or falsehood *				

Systems of Equations and Inequalities	Unit	CHECKPOINT		
		1	2	3
A.4 **Linear functions, equations, and inequalities.** The student applies the mathematical process standards when using graphs of linear functions, key features, and related transformations to represent in multiple ways and solve, with and without technology, equations, inequalities, and systems of equations.				

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Learning Process Standards (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
A.2A apply math in everyday situations				
A.2B use problem-solving models				
A.2C exhibit habits of thinking quantitatively *				

Content	Unit	CHECKPOINT		
		1	2	3
Systems of Equations				
A.4A solve systems of two linear equations with two variables for mathematical and real-world problems				
A.4A.1 write systems of two linear equations given a table of values, a graph, and a verbal description				
A.4A.2 graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist				
Inequalities				
A.4B graph the solution set of linear inequalities in two variables on the coordinate plane				
A.4B.1 write linear inequalities in two variables given a table of values, a graph, and a verbal description				
A.4B.2 solve linear inequalities in one variable				

Learning Process Standards (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
A.2D create representations				
A.2E analyze information				
A.2F develop lines of inquiry to determine truth or falsehood *				

Simplifying Expressions	Unit	CHECKPOINT		
		1	2	3
A.5 **Number and algebraic methods.** The student applies the mathematical process standards and algebraic methods to rewrite in equivalent forms and perform operations on polynomial expressions and rewrite algebraic expressions into equivalent forms.				

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Learning Process Standards (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
A.2A apply math in everyday situations				
A.2B use problem-solving models				
A.2C exhibit habits of thinking quantitatively *				

Content	Unit	CHECKPOINT		
		1	2	3
Polynomials				
A.5A factor, if possible, trinomials with real factors in the form $ax^2 + bx + c$, including perfect square trinomials of degree two				
A.5A.1 add and subtract polynomials of degree one and degree two				
A.5A.2 multiply polynomials of degree one and degree two				
A.5A.3 determine the quotient of a polynomial of degree one and polynomial of degree two when divided by a polynomial of degree one and polynomial of degree two				
A.5A.4 rewrite polynomial expressions in equivalent forms using the distributive property				
A.5A.5 decide if a binomial can be written as the difference of two squares and, if possible, use the structure of a difference of two squares to rewrite the binomial				
Exponents and Radicals				
A.5B simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents				
A.5B.1 simplify numerical radical expressions involving square roots				

Learning Process Standards (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
A.2D create representations				
A.2E analyze information				
A.2F develop lines of inquiry to determine truth or falsehood *				

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DIOCESE of DALLAS

Quadratic Functions	Unit	CHECKPOINT		
		1	2	3
A.6 **Quadratic functions and equations.** The student uses graphs of quadratic functions and their related transformations to represent in multiple ways and determine the solutions to equations.				

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Learning Process Standards (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
A.2A apply math in everyday situations				
A.2B use problem-solving models				
A.2C exhibit habits of thinking quantitatively *				

Content	Unit	CHECKPOINT		
		1	2	3
Describing Quadratic Functions				
A.6A graph quadratic functions on the coordinate plane and use the graph to identify key attributes, if possible, including x-intercept, y-intercept, zeros, maximum value, minimum values, vertex, and the equation of the axis of symmetry				
A.6A.1 determine the domain and range of quadratic functions and represent the domain and range using inequalities				
A.6A.2 determine the effects on the graph of the parent function $f(x) = x^2$ when $f(x)$ is replaced by $af(x)$, $f(x) + d$, $f(x − c)$, $f(bx)$ for specific values of a, b, c, and d				
A.6A.3 evaluate functions, expressed in function notation, given one or more elements in their domains				
Writing and Solving Quadratic Equations				
A.6B solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula				
A.6B.1 write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form ($f(x) = a(x − h)^2 + k$), and rewrite the equation from vertex form to standard form ($f(x) = ax^2 + bx + c$)				
A.6B.2 describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions				
A.6B.3 write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions				

Learning Process Standards (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
A.2D create representations				
A.2E analyze information				
A.2F develop lines of inquiry to determine truth or falsehood *				

Exponential Functions	Unit	CHECKPOINT		
		1	2	3
A.7 **Exponential functions and equations.** The student applies properties of exponential functions and their related transformations to write, graph, and represent in multiple ways exponential equations and evaluate, with and without technology, the reasonableness of their solutions.				

Catholic Identity Standards (Ways to Grow)

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Learning Process Standards (Tools to Know)	Unit	CHECKPOINT		
		1	2	3
A.2A apply math in everyday situations				
A.2B use problem-solving models				
A.2C exhibit habits of thinking quantitatively *				

Content	Unit	CHECKPOINT		
		1	2	3
Describing Exponential Functions				
A.7A graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems				
A.7.A1 determine and represent the domain and range of exponential functions of the form $f(x) = ab^x$				
A.7A.2 interpret the meaning of the values of a and b in exponential functions of the form $f(x) = ab^x$ in real-world problems				
A.7A.3 decide whether relations represented verbally, tabularly, graphically, and symbolically define a function				
Writing Exponential Functions				
A.7B write exponential functions in the form $f(x) = ab^x$ (where b is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay				
A.7B.1 write, using technology, exponential functions that provide a reasonable fit to data				
A.7B.2 identify terms of geometric sequences when the sequences are given in function form using recursive processes				
A.7B.3 write a formula for the nth term of geometric sequences, given the value of several of their terms				

Learning Process Standards (Ways to Show)	Unit	CHECKPOINT		
		1	2	3
A.2D create representations				
A.2E analyze information				
A.2F develop lines of inquiry to determine truth or falsehood *				