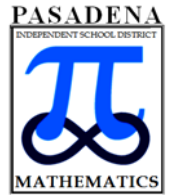


# Algebra I— Six-Weeks-At-a-Glance (2016-2017)



Six Weeks 1

<b>Unit 1: Graphs &amp; Key Features, 5 days</b>				<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>● <b>A.3B</b> - calculate the rate of change of a linear function represented tabularly, graphically, or algebraically in context of mathematical and real-world problems.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.3C</b> - 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.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.7A</b> - 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 value, vertex and the equation of the axis of symmetry</li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.9D</b> - graph exponential functions that model growth and decay and identify key features, including y-intercept and asymptote, in mathematical and real-world problems.</li> </ul>	<ul style="list-style-type: none"> <li>● This first unit is focused on key features of graphs including but not limited to linear, quadratic and exponential functions</li> <li>● Rate of change is included as a review of 8th grade material</li> </ul>
<b>Unit 2: Functions, Domain &amp; Range, 8 days</b>				<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>● <b>A.2A</b> - determine the domain &amp; range of a linear function in problems; determine reasonable domain and range values for real world situations, both continuous and discrete; and represent domain &amp; range using inequalities</li> </ul>		<ul style="list-style-type: none"> <li>● <b>A.6A</b> - determine the domain and range of quadratic functions and represent the domain and range using inequalities</li> </ul>		<ul style="list-style-type: none"> <li>● This is following the introduction of all parent functions covered in Algebra 1. Domain &amp; Range is introduced here and then spiraled in throughout the rest of the year as the function families are taught.</li> </ul>
<ul style="list-style-type: none"> <li>● <b>A.12A</b> - decide whether relations represented verbally, tabularly, graphically, and symbolically define a function</li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.12B</b> - evaluate functions, expressed in function notation, given one or more elements in their domains</li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.9A</b> - determine the domain and range of exponential functions of the form <math>f(x) = ab^x</math> and represent the domain and range using inequalities</li> </ul>		

## Algebra I— Six-Weeks-At-a-Glance (2016-2017)



## Unit 3: Transformations, 5 days

## SE Focus

- **A.3E** - 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.7C** - 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  $d$ .

- This unit ties all transformations together graphically and algebraically (using function notation).

28 days: 18 days—instruction, 2 days—policies & procedures, 2 days—technology, 6 days— review, enrich, reteach, assess



# Algebra I— Six-Weeks-At-a-Glance (2016-2017)

Six Weeks 2

<b>Unit 4: Solve Equations &amp; Inequalities, 6 days</b>				<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>● <b>A.5A - 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</b></li> </ul>				
<ul style="list-style-type: none"> <li>● A.5B - solve linear inequalities in one variable, including those for which the application of the distributive property is necessary and for which variables are included on both sides</li> </ul>		<ul style="list-style-type: none"> <li>● A.12E - solve mathematic and scientific formulas, and other literal equations, for a specified variable</li> </ul>		
<b>Unit 5: Simplifying Expressions, 13 days</b>				<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>● <b>A.10A - add and subtract polynomials of degree one and degree two</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.10D - rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.11A - simplify numerical radical expressions involving square roots</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>A.11B - simplify numeric and algebraic expressions using the laws of exponents, including integral and rational exponents</b></li> </ul>	
23 days: 19 days—instruction, 4 days—review, enrich, reteach, assess)				



# Algebra I— Six-Weeks-At-a-Glance (2016-2017)

Six Weeks 3

## Unit 6: Quadratic Expressions , 14 days

### SE Focus

(refer to unit documents)

• A.10B - multiply polynomials of degree one and degree two

• A.10E - factor, if possible, trinomials with real factors in the form  $ax^2 + bx + c$  , including perfect square trinomials of degree two

• A.10C - 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 when the degree of the divisor does not exceed the degree of the dividend

• A.10D - rewrite polynomial expressions of degree one and degree two in equivalent forms using the distributive property

23 days: 14 days—instruction, 9 days—review, enrich, reteach, assess)

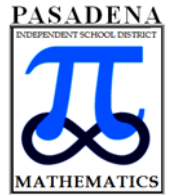
# Algebra I— Six-Weeks-At-a-Glance (2016-2017)



Six Weeks 4

<b>Unit 7: Solve Quadratic Equations, 6.5 days</b>		<b>SE Focus</b>
<ul style="list-style-type: none"> <li>• A.8A - solve quadratic equations having real solutions by factoring, taking square roots, completing the square, and applying the quadratic formula</li> </ul>		
<ul style="list-style-type: none"> <li>• A.10E - factor, if possible, trinomials with real factors in the form <math>ax^2 + bx + c</math>, including perfect square trinomials of degree two</li> </ul>		
<ul style="list-style-type: none"> <li>• A.10F - 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</li> </ul>		
<b>Unit 8: Writing Quadratic Functions, 4 days</b>		<b>SE Focus</b>
<ul style="list-style-type: none"> <li>• A.6B - write equations of quadratic functions given the vertex and another point on the graph, write the equation in vertex form <math>(f(x) = a(x - h)^2 + k)</math>, and rewrite the equation from vertex form to standard form <math>(f(x) = ax^2 + bx + c)</math></li> </ul>	<ul style="list-style-type: none"> <li>• A.6C - write quadratic functions when given real solutions and graphs of their related equations</li> </ul>	<ul style="list-style-type: none"> <li>• A.7B - describe the relationship between the linear factors of quadratic expressions and the zeros of their associated quadratic functions</li> </ul>
<b>Unit 9: Arithmetic Sequences, 4 days</b>		<b>SE Focus</b>
<ul style="list-style-type: none"> <li>A.12C - identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes</li> </ul>	<ul style="list-style-type: none"> <li>A.12D - write a formula for the nth term of arithmetic and geometric sequences, given the value of several of their terms</li> </ul>	

# Algebra I— Six-Weeks-At-a-Glance (2016-2017)



Six Weeks 4

## Unit 10: Writing Linear Equations, 9 days

**SE Focus**  
(refer to unit documents)

• **A.2C - write linear equations in two variables given a table of values, a graph, and a verbal description**

A.3A - 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.2B - 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.2D - write and solve equations involving direct variation

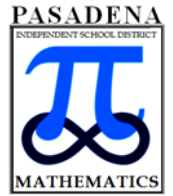
A.2E - write the equation of a line that contains a given point and is parallel to a given line

A.2F - write the equation of a line that contains a given point and is perpendicular to a given line

A.2G - 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

31 days: 23.5 days—instruction, 6.5 days—review, enrich, reteach, assess)

# Algebra I— Six-Weeks-At-a-Glance (2016-2017)



Six Weeks 5

<b>Unit 11: Writing and Solving Systems, 7 days</b>		<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>• <b>A.2I - write systems of two linear equations given a table of values, a graph, and a verbal description</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>A.5C - solve systems of two linear equations with two variables for mathematical and real-world problems</b></li> </ul>	
	<ul style="list-style-type: none"> <li>• <b>A.3F - graph systems of two linear equations in two variables on the coordinate plane and determine the solutions if they exist</b></li> <li>• <b>A.3G - estimate graphically the solutions to systems of two linear equations with two variables in real-world problems</b></li> </ul>	
<b>Unit 12: Linear Inequalities, 5 days</b>		<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>• <b>A.2H - write linear inequalities in two variables given a table of values, a graph, and a verbal description</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>A.3D - graph the solution set of linear inequalities in two variables on the coordinate plane</b></li> </ul>	
	<ul style="list-style-type: none"> <li>• <b>A.3H - graph the solution set of systems of two linear inequalities in two variables on the coordinate plane</b></li> </ul>	
<b>Unit 13: Geometric Sequences, 2 days</b>		<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>• <b>A.12C - identify terms of arithmetic and geometric sequences when the sequences are given in function form using recursive processes</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>A.12D - write a formula for the <math>n</math>th term of arithmetic and geometric sequences, given the value of several of their terms</b></li> </ul>	
<b>Unit 14: Writing &amp; Interpret Exponential Functions, 4 days</b>		<b>SE Focus</b> (refer to unit documents)
<ul style="list-style-type: none"> <li>• <b>A.9C - write exponential functions in the form <math>f(x) = ab^x</math> (where <math>b</math> is a rational number) to describe problems arising from mathematical and real-world situations, including growth and decay</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>A.9B - interpret the meaning of the values of <math>a</math> and <math>b</math> in exponential functions of the form <math>f(x) = ab^x</math> in real-world problems</b></li> </ul>	



# Algebra I— Six-Weeks-At-a-Glance (2016-2017)

Six Weeks 5

## Unit 15: Regressions, 6 days

### SE Focus

(refer to unit documents)

**A.4C - write, with and without technology, linear functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems**

**A.8B - write, using technology, quadratic functions that provide a reasonable fit to data to estimate solutions and make predictions for real-world problems**

**A.9E - write, using technology, exponential functions that provide a reasonable fit to data and make predictions for real-world problems**

A.4A - 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.4B - compare and contrast association and causation in real-world problems

33 days: 24 days—instruction, 9 days—review, enrich, reteach, assess)