MATH 8

Priority Standard 1: Operations with Rational and Irrational Numbers	
0	*Little or no evidence of understanding of Rational and Irrational Numbers*
1	• Distinguish a rational number from an irrational number with help • Identify decimals expansions of rational and irrational numbers with help • Place irrational numbers on a number line with help
2	• Identify rational numbers • Identify decimals expansions of rational and irrational numbers. • Place irrational numbers on a number line • Perform radical addition/subtraction with like terms only ($2\sqrt{6} + 6\sqrt{6}$)
3	• Know that real numbers are either rational or irrational • Understand that all numbers can be represented as a decimal and explain what distinguishes an irrational number from a rational number • Convert a decimal expansion, which repeats eventually, into a rational number • Compare, order and place irrational numbers on a number line • Understand that a truncated expansion of an irrational number is an estimation and find increasingly more accurate placement of an irrational number on a number line • Simplify radicals (ie $\sqrt{12}$ $\sqrt{3}$, $\sqrt{8}$, $\sqrt{16}$, $\sqrt{27}$ 3) • Perform radical operations and collect like terms (ie $\sqrt{6}$ ($\sqrt{15} + \sqrt{6}$), $\sqrt{27} - \sqrt{12}$, $2\sqrt{6} + 6\sqrt{6}$)
4	• Justify why a number is rational or irrational • Explain the characteristics of rational and irrational numbers' decimal expansions • Justify the process of converting a decimal expansion, which repeats eventually, into a rational number • Justify placement, comparison and order of irrational numbers on a number line • Estimate values of irrational numbers in decimals and explain why is it possible to find increasingly more accurate estimations • Explain radical operations and collect like terms (ie $\sqrt{6}$ ($\sqrt{15} + \sqrt{6}$), $\sqrt{27} - \sqrt{12}$, $2\sqrt{6} + 6\sqrt{6}$)

Priority Standard 2: Proportional Reasoning	
0	*Little or no understanding of proportional and linear relationships*
1	• With help, identify whether a relationship is linear or proportional • Identify the slope of a linear equation with help or inconsistently • Identify the y-intercept
2	• Identify whether a relationship is linear or proportional • Identify the slope of a linear equation from various representations • Identify the y-intercept • Recognize that the slope is the same between any two points on a line
3	• Explain the differences and similarities of linear and proportional relationships • Identify the slope of a linear equation from various representations and understand the slope as the unit rate in a proportional relationship • Identify the y-intercept and explains its meaning in a given context • Explain why the slope is the same between any two points on a line using similar right triangle
4	• Explain the differences and similarities of linear and proportional relationships • Identify the slope of a linear equation from various representations and understand the slope as the unit rate in a proportional relationship • Explain the meaning of a y-intercept in context from a variety of representations

	• Justify why the slope is the same between any two points on a line using similar right triangle

Priority Standard #3: Simplify Expressions and Solve Equations	
0	*Little to no evidence of understanding simplifying expression and solving equations*
1	• Identify linear slope and y-intercept from an equation in the form y = mx+b • Solve linear equations and inequalities in one variable with limited accuracy • With help, identify whether there are zero, one or infinite solutions • Distinguish between linear and non-linear functions given a graph • Construct scatter plots
2	• Compare linear relationships using slope and y-intercept from the same representation (equation, table, graph, context, etc.) • Solve linear equations and inequalities in one variable • Identify whether there are zero, one or infinite solutions • Distinguish between linear and non-linear functions given their algebraic expression or a graph • Identify the slope of a linear function • Identify an equation in the form y = mx + b as linear • Understand a line as a relationship between two quantitative variables • Construct scatter plots and draw the line of best fit • Use the trend line to make predictions
3	• Compare linear relationships using slope and y-intercept from a variety of representations (equation, table, graph, context, etc.) • Solve linear equations and inequalities in one variable and explain the solution pathway • Identify whether there are zero, one or infinite solutions and explain why this is the case • Distinguish between linear and non-linear functions given their algebraic expression, a table, or a graph and understand that relationships with a constant rate of change are linear • Understand the slope of a linear function as a constant rate of change, whose graph is a straight line • Understand that every linear function can be written in the form y = mx + b • Construct a linear equation from multiple representations • Construct scatter plots and use the graph to describe the relationship between two variables, including constructing the equation for the line of best fit • Use the trend line to make predictions and understand what the rate and y-intercept represent
4	• Compare linear characteristics of linear functions from a variety of representations (equation, table, graph, context, etc.) and explain why the comparisons are valid • Solve linear equations and inequalities in one variable and explain the solution pathway and make connections between the solution and various representations • Identify whether there are zero, one or infinite solutions and explain why this is the case • Explain the distinction between linear and non-linear functions given their algebraic expression, a table, or a graph and understand that relationships with a constant rate of change are linear • Understand the slope of a linear function as a constant rate of change, whose graph is a straight line • Explain why every linear function can be written in the form y = mx + b • Understand a line as a relationship between two quantitative variables • Construct a linear equation from multiple representations and make connections between representations

	• Construct scatter plots and use the graph to describe the relationship between two variables, including constructing the equation for the line of best fit • Use the trend line to make predictions and understand what the rate and y-intercept represent

Priority Standard 4: Represent and Analyze Relationships	
0	*Italic for subtext Georgia 11 pt*
1	• Find the solution to small square roots • Simplify square roots with support • Use the Pythagorean Theorem to find missing side lengths in triangles with support or with errors
2	• Find the solution to small square roots • Simplify square roots with errors • Perform operations with square roots with limited accuracy • Use the Pythagorean Theorem to find missing side lengths in triangles • Find the distance between two points on a coordinate plane by applying the Pythagorean Theorem with support
3	• Understand the solution to small square roots • Simplify square roots • Perform operations with square roots • Use the Pythagorean Theorem to find missing side lengths in triangles including 2- and 3-D real world problems • Explore proofs of the Pythagorean Theorem • Know the converse of the Pythagorean Theorem • Find the distance between two points on a coordinate plane by applying the Pythagorean Theorem
4	• Explain the solution to small square roots and make connections to real world problems • Explain the process of simplifying square roots and why simplifying does not change the value • Perform operations with square roots and explain how the process generates an equivalent expression • Use the Pythagorean Theorem to find missing side lengths in triangles including 2- and 3-D real world problems and justify the solution pathway • Understand and explain proofs of the Pythagorean Theorem and its converse • Use the structure of the coordinate plane and the Pythagorean Theorem to find the distance between two points and justify the solution pathway