

# Grade 8 Math Proficiency Scale Quarter 1

	<b>1 = Novice</b>	<b>2 = Approaching</b>	<b>3 = Proficient</b>	<b>4 = Advanced</b>
Linear Equations with Integers	<b>Engages in the practice</b> of solving linear equations with guidance and support.	Solves a <b>two-step</b> linear equation with integer coefficients where there is one solution.	Solves linear equations with integer coefficients including equations using the distributive property and combining like terms where there is one solution, infinitely many solutions, or no solution.	Solves linear equations with <b>rational</b> number coefficients including equations using the distributive property and combining like terms where there is one solution, infinitely many solutions, or no solution <b>AND</b> gives examples of linear equations in one variable with one solution, infinitely many solutions, or no solution (8.EE.7)
Transformations	<b>Engages in the practice</b> of identifying a transformation on a two-dimensional figure.	Identifies a dilation, translation, rotation, <b>or</b> reflection on two-dimensional figures.	Identifies dilations, translations, rotations, and reflections on two-dimensional figures on a coordinate plane. (8.G.1, 8.G.3)	Demonstrates and describes in detail using mathematical vocabulary the pattern using formal coordinate notation for performing dilations, translations, rotations, and reflections on two-dimensional figures on a coordinate plane.
Congruence & Similarity	Identifies when two figures are congruent or similar with guidance and support.	<b>Identifies</b> congruent <b>or</b> similar two-dimensional figures given only one transformation.	Identifies a sequence of transformations for both congruent and similar two-dimensional figures. (8.G.2, 8.G.4)	Demonstrates and describes in detail using mathematical vocabulary the sequence of transformations that equal to one single transformations.
Angle Relationships & Lines	<b>Identifies</b> exterior or interior angles of a triangle <b>or</b> angles created when two parallel lines are cut by a transversal <b>with guidance and support</b> .	<b>Recognizes or recalls</b> facts about triangles angle sum and parallel lines cut by transversal.	Uses facts about a triangle's angle sum AND parallel lines cut by transversal (8.G.5)	Given a pair of parallel lines and two congruent angles, informally proves another set of transversal lines are parallel.

Makes Sense of Problems and Persevere	Attempts to start the problem but is unable to complete the process.	Attempts to analyze, plan, monitor, and evaluate progress on math problems <b>AND</b> makes one attempt to solve a problem.	Analyzes, plans, monitors, and evaluates progress on math problems <b>AND</b> makes several attempts to solve the problem. (MP.1)	Not Assessed
Attend to Precision	Attempts to communicate work and reasoning, but math vocabulary and units are absent <b>AND</b> calculates with repeated basic computation errors.	Attempts to communicate work and reasoning using math vocabulary and units <b>AND</b> calculates with basic computation errors.	Communicates work and reasoning using math vocabulary and units <b>AND</b> calculates with little or no basic computations error. (MP.6)	Not Assessed

# Grade 8 Math Proficiency Scale Quarter 2

	<b>1 = Novice</b>	<b>2 = Approaching</b>	<b>3 = Proficient</b>	<b>4 = Advanced</b>
Understanding Slope	<b>Identifies</b> slope with guidance and support.	<b>Recognizes</b> the slope as the rate of change of a graph <b>OR</b> <b>recognizes</b> slope as a constant rate on a non-vertical line.	Identify slope from a graph, table and two points (EE.5) <b>AND</b> explains why the slope $m$ is the same between any two distinct points on a non-vertical line in the coordinate plane. (8.EE.6)	Analyzes how the different ways to find slope of the graph are related using mathematical vocabulary.
Graphing Functions	Participates in the practice of graphing linear or non-linear functions.	Constructs the graph of a linear function from a table, equation, <b>or</b> verbal description	Constructs the graph of a linear function from a table, equation, and verbal description (8.EE.5, 8.F.4, 8.F.5)	<b>Create</b> situations that can be modeled by a linear functions and describe the domain and range in the context of the situation.
Writing Linear Equations	Participates in the practice of writing an equation of a line.	Writes the equation $y = mx + b$ from a description, graph <b>OR</b> table.	Writes the equation $y = mx + b$ from a description, graph, and table. (8.EE.6, 8.F.4)	<b>Summarizes in words</b> how to write the equation of a line from a non-specific description, graph, and table.
Interpreting Functions	With guidance and support, identifies a function <b>OR</b> identifies a quality of a graph of functional relationship.	Understands the definition of a linear and non-linear functions as represented in a table, equation, <b>or</b> a graph <b>OR</b> interprets the rate of change <b>or</b> initial value of a linear function in terms of the situation it models.	Understands the definition of a linear and non-linear function as represented in a table, equation, and a graph (8.F.1, 8.F.3) <b>AND</b> interprets the rate of change and initial value of a linear function in terms of the situation it models (8.F.4, 8.F.5)	Understands and describes how domain and range change between graphs of linear and non-linear functions.
Comparing Linear Functions	With guidance and support, <b>sorts</b> functions based on a property.	<b>Identifies</b> a difference between two linear functions represented in the same way.	<b>Compares</b> the properties (slope, y-intercept, linear and non-linear) of linear functions represented in different ways using math vocabulary. (8.EE.5, 8.F.2)	<b>Creates</b> examples of functions represented in different ways and compares and contrasts properties of those functions.

Makes Sense of Problems and Persevere	Attempts to start the problem, but is unable to complete the process.	Attempts to analyze, plan, monitor, and evaluate progress on math problems <b>AND</b> makes one attempt to solve a problem.	Analyzes, plans, monitors, and evaluates progress on math problems <b>AND</b> makes several attempts to solve the problem. (MP.1)	Not Assessed
Attend to Precision	Attempts to communicate work and reasoning, but math vocabulary and units are absent <b>AND</b> calculates with repeated basic computation errors.	Attempts to communicate work and reasoning using math vocabulary and units <b>AND</b> calculates with basic computation errors.	Communicates work and reasoning using math vocabulary and units <b>AND</b> calculates with little or no basic computations error. (MP.6)	Not Assessed

# Grade 8 Math Proficiency Scale Quarter 3

	<b>1 = Novice</b>	<b>2 = Approaching</b>	<b>3 = Proficient</b>	<b>4 = Advanced</b>
Pythagorean Theorem	Recalls the Pythagorean Theorem and how it relates to a right triangle with structured support.	Uses the Pythagorean theorem to determine unknown side lengths in two dimensional problems <b>OR</b> uses the Pythagorean theorem to find the distance between two points on a coordinate plane.	Explains how the Pythagorean theorem relates to triangles <b>AND</b> uses the Pythagorean theorem to determine unknown side lengths in right triangles to solve real-world problems in two & three dimensions and on a coordinate plane. (8.G.6, 8.G.7, 8.G.8)	Creates and explains a formula to find the distance between two points $(x_1, y_1)$ , $(x, y_2)$ .
Rational & Irrational Numbers	With help and support, identifies an irrational number.	Identifies numbers that are rational or irrational <b>OR</b> locates irrational numbers on a number line.	Understands the definition of rational and irrational numbers based on the decimal expansion <b>AND</b> uses rational approximations to compare the size of irrational numbers using number line (8.NS.1 & 8.NS.2)	Describes in depth and using math vocabulary the entire the entire real number system and the inner relationships.
Exponent Equations	With help and support, identifies a radical as rational and irrational.	Classifies radicals as rational or irrational <b>OR</b> evaluates square roots of small perfect squares.	Solves equations of the form $x^2 = p$ using square root symbols to represent solutions <b>AND</b> evaluates square roots of small perfect squares. (8.EE.2)	Write equivalent radical expressions by simplifying radicals <b>AND</b> explain why the two expressions are equivalent.
Bivariate Data	Participates in the practice of constructing a scatter plot.	Construct a scatter plot <b>OR</b> uses straight lines to informally model a relationship between two quantitative variables.	Interprets scatter plots for bivariate measurement data <b>AND</b> uses, understands, and assesses a linear model in the context of the problem. (8.SP.1, 8.SP.2, 8.SP.3)	Write and interprets an equation of a line of best fit from a linear model in the context of a real-world situation.
Two-Way Frequency Tables	Participates in the practice of constructing a two-way table summarizing data on two categorical variables collected from the same subjects.	Construct a two-way table summarizing data on two categorical variables collected from the same subjects.	Use relative frequencies calculated for rows or columns to describe possible association between the two variables. (8.SP.4)	Calculate and interpret relative frequencies (including joint, marginal, <b>AND</b> conditional) in the context of the data <b>AND</b> identify possible associations and trends in the data.

Makes Sense of Problems and Persevere	Attempts to start the problem, but is unable to complete the process.	Attempts to analyze, plan, monitor, and evaluate progress on math problems <b>AND</b> makes one attempt to solve a problem.	Analyzes, plans, monitors, and evaluates progress on math problems <b>AND</b> makes several attempts to solve the problem. (MP.1)	Not Assessed
Attend to Precision	Attempts to communicate work and reasoning, but math vocabulary and units are absent <b>AND</b> calculates with repeated basic computation errors.	Attempts to communicate work and reasoning using math vocabulary and units <b>AND</b> calculates with basic computation errors.	Communicates work and reasoning using math vocabulary and units <b>AND</b> calculates with little or no basic computations error. (MP.6)	Not Assessed

# Grade 8 Math Proficiency Scale Quarter 4

	<b>1 = Novice</b>	<b>2 = Approaching</b>	<b>3 = Proficient</b>	<b>4 = Advanced</b>
Integer Exponents	Writes the expanded form of an integer raised to a power.	Applies a property of integer exponents to generate equivalent expressions.	Knows and applies multiple properties of integer exponents to generate equivalent expressions. (8.EE.1)	Writes and explains in detail with math vocabulary multiple equivalent expressions using different properties of integer exponents.
Scientific Notation	Identifies when a number is written in scientific notation with structure support.	Identifies which number is larger or smaller when both are expressed in scientific notation <b>OR</b> performs an operation using technology with both numbers expressed in scientific notation.	Compares numbers written in scientific notation <b>AND</b> performs operations using technology with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. (8.EE.3, 8.EE.4)	Performs multiple operations in a real-world problem with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used.
Systems of Equations	With help and support, identifies the solution to a linear system.	Solves systems of linear equations using a method of solving <b>OR</b> explains the possible solutions for a system and what it represents with the two linear equations.	Solves systems of linear equations algebraically and graphically <b>AND</b> writes the systems of linear equations in two variables to solve real-world and mathematical problems. (8.EE.8)	Solve systems of linear equations with rational solutions that requires the one or both equations to be rearranged before solving.
Volume	With guidance and support, identifies the formulas for the volume of cones, spheres, and cylinders.	Recognizes or recalls the formulas for the volume of cones, spheres, and cylinders.	Uses the volume of cones, spheres, and cylinders to solve real-world and mathematical problems. (8.G.9)	Solve real-world mathematical problems involving composite figures consisting of cones, cylinders, and spheres <b>AND</b> solve for unknown dimensions given the volume and other dimensions.
Exponent Equations	With help and support, identifies a cubed root.	Evaluates cube roots of small perfect cubes.	Solves equations of the form $x^3 = p$ using cube root symbols to represent solutions <b>AND</b> evaluates cube roots of small perfect cubes. (8.EE.2)	Write equivalent radical expressions by simplifying radicals <b>AND</b> explain why the two expressions are equivalent.

Linear Equations with Rational Numbers	<b>Engages in the practice</b> of solving linear equations with guidance and support.	Solves linear equations with integer coefficients including equations using the distributive property and combining like terms where there is one solution, infinitely many solutions, or no solution.	Solves linear equations with rational number coefficients including equations using the distributive property and combining like terms where there is one solution, infinitely many solutions, or no solution <b>AND</b> gives examples of linear equations in one variable with one solution, infinitely many solutions, or no solution (EE.7)	Solves linear equations with variables as coefficients using distributive property and combining like terms and gives a detailed explanation in the context of problem using mathematical vocabulary.
Makes Sense of Problems and Persevere	Attempts to start the problem, but is unable to complete the process.	Attempts to analyze, plan, monitor, and evaluate progress on math problems <b>AND</b> makes one attempt to solve a problem.	Analyzes, plans, monitors, and evaluates progress on math problems <b>AND</b> makes several attempts to solve the problem. (MP.1)	Not Assessed
Attend to Precision	Attempts to communicate work and reasoning, but math vocabulary and units are absent <b>AND</b> calculates with repeated basic computation errors.	Attempts to communicate work and reasoning using math vocabulary and units <b>AND</b> calculates with basic computation errors.	Communicates work and reasoning using math vocabulary and units <b>AND</b> calculates with little or no basic computations error. (MP.6)	Not Assessed