8th Grade Math Checklist

The Number System
- ❑ 8.NS.A.1: I can tell you what an irrational number is. I can describe and convert decimal expansion in rational numbers.
- ❑ 8.NS.A.2: I can compare the size of irrational numbers using approximate rational numbers as guides. I can find irrational numbers on a number line and estimate the value of expressions.

Expressions and Equations
- ❑ 8.EE.A.1: I can use the properties of integer exponents to figure out their equivalent numerical expressions.
- ❑ 8.EE.A.2: I can use the square root and cube root symbols to find solutions to equations in the form $x^2 = p$ and $x^3 = p$ where p is a positive rational number. I can find perfect squares and perfect cubes. I know that square root of 2 is irrational.
- ❑ 8.EE.A.3: I can estimate very large and very small quantities by using numbers that are shown as a single digit times an integer power of 10.
- ❑ 8.EE.A.4: I can perform operations with numbers shown using scientific notation (including problems with decimals). I can use scientific notation and choose units that make sense for what I am finding. I can tell you what scientific notation that has been created by technology means.
- ❑ 8.EE.B.5: I can graph proportional relationships. I can interpret the unit rate as the slope of a graph. I can compare two proportional relationships that are shown in different ways.
- ❑ 8.EE.B.6: I can use similar triangles to explain why the slope (m) is the same between any two specific points on a non-vertical line in the coordinate plane. I can find the equation y=mx for a line through the origin. I can find the equation y=mx+b for a line that intercepts the vertical axis at b.
- ❑ 8.EE.C.7: I can solve linear equations in one variable.
- ❑ 8.EE.C.7.A: I can give examples of linear equations that have one variable and one solution, infinitely many solutions, or no solutions. I can show which of these possibilities is the correct one by changing the equation into a simpler form.
- ❑ 8.EE.C.7.B: I can solve linear equations that have rational number coefficients, including equations that have solutions that need to be expanded by using the distributive property and collecting like terms.
- ❑ 8.EE.C.8: I can analyze and solve pairs of simultaneous linear equations.
- ❑ 8.EE.C.8.A: I can tell you that answers to a system of two linear equations in two variables go along with points of intersection of their graphs, because those points satisfy both equations at the same time.
- ❑ 8.EE.C.8.B: I can solve systems of two linear equations in two variables by using algebra. I can estimate their solutions by graphing the equations. I can use inspection to solve simple problems.
- ❑ 8.EE.C.8.C: I can solve real-world math problems that lead to two linear equations in two variables.

Functions
- ❑ 8.F.A.1: I can tell you that a function gives exactly one output for every input. I know that the graph of functions is the set of ordered pairs with an input and its corresponding output.
- ❑ 8.F.A.2: I can compare properties of two functions that are shown in different ways (such as in tables, graphs, verbal descriptions, etc.).
- ❑ 8.F.A.3: I can tell you that the equation y=mx+b is a linear function whose graph is a straight line. I can name functions that are not linear.

- ❏ 8.F.B.4: I can construct a function to show a linear relationship between two quantities. I can figure out the rate of change and the starting value of the function when I'm given information like a description of their relationship or from two (x,y) values.
- ❏ 8.F.B.5: I can describe the relationship between two quantities by looking closely at a graph. I can sketch a graph that shows the features of a function that has been described aloud.

Geometry
- ❏ 8.G.A.1: I can experiment with rotations, reflections, and translations.
- ❏ 8.G.A.1.A: I can tell you that lines are taken to lines, and line segments to line segments of the same length.
- ❏ 8.G.A.1.B: I can explain that angles are taken to angles of the samemeasure.
- ❏ 8.G.A.1.C: I can tell you that parallel lines are taken to parallel lines.
- ❏ 8.G.A.2: I can explain that a 2-D figure is congruent to another if the second can be obtained from the first through rotations, reflections, translations, and dilations. If given two congruent 2-D figures, I can talk about a sequence that shows their congruence.
- ❏ 8.G.A.3: I can talk about the effects of dilations, translations, rotations, and reflections on 2-D figures using coordinates.
- ❏ 8.G.A.4: I can explain that a 2-D figure is similar to another if the second can be obtained from the first through rotations, reflections, translations, and dilations. If given two similar 2-D figures, I can talk about a sequence that shows their similarity.
- ❏ 8.G.A.5: I can use informal arguments to create facts about the angle sum and exterior angle of triangles, about angles that are made when parallel lines are cut by a transversal, and about the angle-angle criterion for the similarity of triangles.
- ❏ 8.G.B.6: I can explain a proof of the Pythagorean Theorem and its converse.
- ❏ 8.G.B.7: I can apply the Pythagorean Theorem in real-world situations in order to figure out the lengths of sides in right triangles.
- ❏ 8.G.B.8: I can find the distance between two points in a coordinate system by using the Pythagorean Theorem.
- ❏ 8.G.C.9: I can tell you the formulas that are used to find the volume of cones, cylinders, and spheres. I can use formulas to solve real-world math problems.

Statistics and Probability
- ❏ 8.SP.A.1: I can make and interpret scatter plots for data that has two variables. I can look closely at how two quantities are related. I can describe things like clustering, outliers, and positive/negative/linear/nonlinear association.
- ❏ 8.SP.A.2: I can explain that straight lines are used to show relationships between two quantitative variables. I know that scatter plots that show linear relations resemble a straight line. I can assess the model by looking at how closely the data points are to the line.
- ❏ 8.SP.A.3: I can use the equation of a linear model to solve problems involving two variables. I can find the slope and the intercept.
- ❏ 8.SP.A.4: I can tell you that patterns of association with bivariate (two-variable) data can be shown using two-way tables displaying frequencies and relative frequencies. I can make, interpret, and use two-way tables. I can use relative frequencies to talk about associations between the two variables.