The following topics are covered on the Integrated Math 1 Challenge Exam.

Equations & Inequalities

1. Solve linear equations
2. Solve equations for a stated variable
3. Solve absolute value equations
4. Solve proportions
5. Graph number line inequalities
6. Solve simple, compound and absolute value inequalities

Linear Functions

1. Identify linear functions from an equation or graph
2. Calculate the slope of a line, including vertical and horizontal lines
3. Graph lines in slope-intercept form
4. Graph vertical and horizontal lines
5. Find the x-intercept and y-intercept of a line
6. Graph lines in standard form
7. Graph lines in point-slope form
8. Graph lines given a point on the line and a parallel or perpendicular slope
9. Write equations of lines given a point and the slope or given two points

Functions

1. Define relations and functions
2. Recognize functions from an equation, table or graph
3. Use function notation
4. Identify correlation in scatterplots
5. Use scatterplots and lines of best fit as prediction tools

Systems of Equations and Inequalities

1. Solve systems of linear equations by graphing, substitution or elimination
2. Graph linear inequalities
3. Solve systems of linear inequalities

Exponentials

1. Use the rules of exponents to simplify expressions
2. Rewrite radicals as integers with rational exponents
3. Graph exponential growth and exponential decay functions

Foundations of Geometry

1. Measure segments and angles
2. Construct segments and angles, including perpendicular bisectors and angle bisectors
3. Use the midpoint formula to calculate the midpoint of two points
4. Use the distance formula to calculate the distance between two points
4. Differentiate inductive and deductive reasoning

5. Use inductive reasoning to make conjectures
6. Use deductive reasoning to verify conjectures
7. Recognize the hypothesis and conclusion in a conditional statement
8. Write the inverse, converse and contrapositive of a conditional statement
9. Find the truth value of a statement
10. Write a geometric two-column proof

Parallel and Perpendicular Lines

1. Classify the angle pairs formed when parallel lines are cut by a transversal
2. Calculate measures of angles formed by parallel lines cut by a transversal
3. Use the properties of transversals to prove that two lines are parallel
4. Determine whether given lines are parallel or perpendicular

Transformations

1. Reflect an image and write a rule for a reflection
2. Translate a figure and write a rule for a translation
3. Rotate a figure and write a rule for a rotation
4. Identify a composition of transformations that carry a given figure onto another
5. Use geometric descriptions of rigid motions to transform figures
6. Predict the effect of a given rigid motion on a figure
7. Identify the types of symmetry in a figure

Triangle Congruence

1. Relate congruence to rigid motions
2. Classify triangles by side length or angle measure
3. Calculate the measures of the angles of a triangle
4. Use the properties of isosceles and equilateral triangles to solve problems
5. Determine if triangles are congruent using SSS, SAS, ASA, AAS and HL
6. Use CPCTC to solve triangles

Statistics

1. Represent data using and interpret data displayed as dot plots, box plots and histograms
2. Interpret the differences in shape, center and spread of data
3. Calculate measures of central tendency (mean, median, mode) and variance (range, IQR)
4. Explain the effect of outliers on a data set