

NUMBER AND OPERATIONS

20% of CRCT

M7N1. Students will understand the meaning of positive and negative rational numbers and use them in computation.

- Find the absolute value of a number and understand it as the distance from zero on a number line.
 - Compare and order rational numbers, including repeating decimals.
 - Add, subtract, multiply, and divide positive and negative rational numbers.
 - Solve problems using rational numbers.
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GEOMETRY

25% of CRCT

M7G1. Students will construct plane figures that meet given conditions.

- Perform basic constructions using both compass and straight edge, and appropriate technology. Constructions should include copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.
- Recognize that many constructions are based on the creation of congruent triangles.

M7G2. Students will demonstrate understanding of transformations.

- Demonstrate understanding of translations, dilations, rotations, reflections, and relate symmetry to appropriate transformations.
- Given a figure in the coordinate plane, determine the coordinates resulting from a translation, dilation, rotation, or reflection.

M7G3. Students will use the properties of similarity and apply these concepts to geometric figures.

- Understand the meaning of similarity, visually compare geometric figures for similarity, and describe similarities by listing corresponding parts.
- Understand the relationships among scale factors, length ratios, and area ratios between similar figures. Use scale factors, length ratios, and area ratios to determine side lengths and areas of similar geometric figures.
- Understand congruence of geometric figures as a special case of similarity: The figures have the same size and shape.

M7G4. Students will further develop their understanding of three-dimensional figures.

- Describe three-dimensional figures formed by translations and rotations of plane figures through space.
 - Sketch, model, and describe cross-sections of cones, cylinders, pyramids, and prisms.
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ALGEBRA

40% of CRCT

M7A1. Students will represent and evaluate quantities using algebraic expressions.

- Translate verbal phrases to algebraic expressions.
- Simplify and evaluate algebraic expressions, using commutative, associative, and distributive properties as appropriate.
- Add and subtract linear expressions.

M7A2. Students will understand and apply linear equations in one variable.

- Given a problem, define a variable, write an equation, solve the equation, and interpret the solution.
- Use the addition and multiplication properties of equality to solve one- and two-step linear equations.

M7A3. Students will understand relationships between two variables.

- Plot points on a coordinate plane.
 - Represent, describe, and analyze relations from tables, graphs, and formulas.
 - Describe how change in one variable affects the other variable.
 - Describe patterns in the graphs of proportional relationships, both direct ($y = kx$) and inverse ($y = k/x$).
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DATA ANALYSIS AND PROBABILITY

15% of CRCT

M7D1. Students will pose questions, collect data, represent and analyze the data, and interpret results.

- Formulate questions and collect data from a census of at least 30 objects and from samples of varying sizes.
- Construct frequency distributions.
- Analyze data using measures of central tendency (mean, median, and mode), including recognition of outliers.
- Analyze data with respect to measures of variation (range, quartiles, interquartile range).
- Compare measures of central tendency and variation from samples to those from a census.
- Observe that sample statistics are more likely to approximate the population parameters as sample size increases.
- Analyze data using appropriate graphs, including pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots introduced earlier, and using box and- whisker plots and scatter plots.
- Analyze and draw conclusions about data, including describing the relationship between two variables.

TERMS AND SYMBOLS

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| <input type="checkbox"/> natural number | <input type="checkbox"/> dilation | <input type="checkbox"/> algebraic expression |
| <input type="checkbox"/> whole number | <input type="checkbox"/> symmetry | <input type="checkbox"/> direct variation |
| <input type="checkbox"/> sign | <input type="checkbox"/> bisector | <input type="checkbox"/> inverse variation |
| <input type="checkbox"/> integer | <input type="checkbox"/> parallel lines | <input type="checkbox"/> inversely proportional |
| <input type="checkbox"/> opposite | <input type="checkbox"/> perpendicular lines | <input type="checkbox"/> mean |
| <input type="checkbox"/> negative | <input type="checkbox"/> cross-section | <input type="checkbox"/> median |
| <input type="checkbox"/> positive | <input type="checkbox"/> similar | <input type="checkbox"/> mode |
| <input type="checkbox"/> absolute value | <input type="checkbox"/> congruent | <input type="checkbox"/> range |
| <input type="checkbox"/> term | <input type="checkbox"/> point | <input type="checkbox"/> quartile |
| <input type="checkbox"/> variable | <input type="checkbox"/> line | <input type="checkbox"/> interquartile range |
| <input type="checkbox"/> commutative property | <input type="checkbox"/> plane | <input type="checkbox"/> outlier |
| <input type="checkbox"/> associative property | <input type="checkbox"/> line segment | <input type="checkbox"/> histogram |
| <input type="checkbox"/> distributive property | <input type="checkbox"/> endpoints | <input type="checkbox"/> scatter plot |
| <input type="checkbox"/> algebraic expression | <input type="checkbox"/> intersection | <input type="checkbox"/> line plot |
| <input type="checkbox"/> linear equation | <input type="checkbox"/> ray | <input type="checkbox"/> box-and-whisker plot |
| <input type="checkbox"/> direct and indirect | <input type="checkbox"/> parallel lines | <input type="checkbox"/> perpendicular lines |
| <input type="checkbox"/> proportions | <input type="checkbox"/> perpendicular lines | <input type="checkbox"/> symbol |
| <input type="checkbox"/> constant of proportionality ($y = kx$) | <input type="checkbox"/> similar | <input type="checkbox"/> angle symbol |
| <input type="checkbox"/> variation | <input type="checkbox"/> similarity | <input type="checkbox"/> \cong |
| <input type="checkbox"/> polyhedron | <input type="checkbox"/> rate | <input type="checkbox"/> \sim |
| <input type="checkbox"/> translation | <input type="checkbox"/> scale drawings | <input type="checkbox"/> \approx |
| <input type="checkbox"/> rotation | <input type="checkbox"/> corresponding sides | <input type="checkbox"/> \parallel |
| <input type="checkbox"/> reflection | <input type="checkbox"/> corresponding | |
| | <input type="checkbox"/> angles | |
| | <input type="checkbox"/> congruent | |
| | <input type="checkbox"/> diagonal | |