

TEKS: Mathematics

- (1) Number, operation, and quantitative reasoning. The student understands that different forms of numbers are appropriate for different situations. The student is expected to:**

 - (A) compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals;
 - (B) select and use appropriate forms of rational numbers to solve real life problems including those involving proportional relationships;**
 - (C) approximate (mentally and with calculators) the value of irrational numbers as they arise from problem situations (such as $\sqrt{2}$, $\sqrt[3]{2}$);
- (2) Number, operation, and quantitative reasoning. The student selects and uses appropriate operations to solve problems and justify solutions. The student is expected to:**

 - (A) select appropriate operations to solve problems involving rational numbers and justify the selections;
 - (B) use appropriate operations to solve problems involving rational numbers in problem situations;**
 - (C) evaluate a solution for reasonableness; and**
 - (D) use multiplication by a given constant factor (including unit rate) to represent and solve problems involving proportional relationships including conversions between measurement systems.**
- (3) Patterns, relationships, and algebraic thinking. The student identifies proportional or non-proportional linear relationships in problem situations and solves problems. The student is expected to:

 - (A) compare and contrast proportional and non-proportional linear relationships; and
 - (B) estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates.
- (4) Patterns, relationships, and algebraic thinking. The student makes connections among various representations of a numerical relationship. The student is expected to generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).
- (5) Patterns, relationships, and algebraic thinking. The student uses graphs, tables, and algebraic representations to make predictions and solve problems. The student is expected to:

 - (A) predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations; and**
 - (B) find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change).**
- (14) Underlying processes and mathematical tools. The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to:

 - (A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;

- (B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
 - (C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
 - (D) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.
- (15) Underlying processes and mathematical tools. The student communicates about Grade 8 mathematics through informal and mathematical language, representations, and models. The student is expected to:
- (A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and
 - (B) evaluate the effectiveness of different representations to communicate ideas.
- (16) Underlying processes and mathematical tools. The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to:
- (A) make conjectures from patterns or sets of examples and nonexamples; and
 - (B) validate his/her conclusions using mathematical properties and relationships.