

HiSET Mathematics Standards	Learning Upgrade HiSET Math
<b>I. Numbers and Operations on Numbers</b>	
1. Use properties of operations with real numbers, including rational and irrational numbers.	Lessons 1, 7
2. Rewrite expressions involving radicals and rational exponents using the properties of exponents.	Lessons 2, 17
3. Solve problems involving numbers written in scientific notation.	Lesson 3
4. Reason quantitatively and use units to solve problems.	Lesson 20
5. Choose a level of accuracy appropriate to limitations on measurement.	Lesson 43
6. Solve multistep real-world and mathematical problems involving rational numbers in any form and proportional relationships (settings may include money, rate, percent, average, estimation/rounding).	Lessons 4, 5, 8, 9, 10, 12, 19, 21, 22, 43
<b>II. Measurement /Geometry</b>	
1. Use congruence and similarity criteria for triangles to solve problems and prove relationships in geometric figures.	
2. Know properties of polygons and circles, including angle measure, central angles, inscribed angles, perimeter, arc length and area of a sector, circumference, and area.	Lessons 44, 45, 46, 47, 48
3. Understand and apply the Pythagorean Theorem.	Lesson 50
4. Understand transformations in the plane, including reflections, translations, rotations, and dilations.	Lesson 49
5. Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.	Lessons 51, 52, 53
6. Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).	Lesson 47
<b>III. Data Analysis/Probability/Statistics</b>	
1. Summarize and interpret data presented verbally, tabularly, and graphically; make predictions and solve problems based on data. Recognize possible associations and trends in the data.	Lessons 54, 56, 57
2. Identify line of best fit.	Lesson 57
3. Find the probabilities of single and compound events.	Lesson 58
4. Approximate the probability of a chance event, and develop a probability model and use it to find probabilities of events.	Lessons 58, 59
5. Use measures of center (mean) to draw inferences about populations including summarizing numerical data sets and calculation of measures of center.	Lessons 55, 56, 57
6. Understand how to use statistics to gain information about a population from a sample of the population.	Lessons 10, 56, 57

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<b>IV. Algebraic Concepts</b>	
1. Interpret parts of an expression, such as terms, factors, and coefficients in terms of its context.	Lessons 12, 13, 14, 36
2. Perform arithmetic operations on polynomials and rational expressions.	Lessons 12, 13, 14, 33, 34, 35, 36, 37
3. Write expressions in equivalent forms to solve problems. Factor a quadratic expression to reveal the zeros of the function it defines.	Lessons 17, 35, 36, 37, 38
4. Solve linear equations and inequalities in one variable with coefficients represented by letters.	Lessons 11, 15, 16, 29
5. Solve quadratic equations in one variable.	Lessons 39, 40, 41, 42
6. Solve simple rational and radical equations in one variable.	Lesson 15
7. Solve systems of equations.	Lessons 31, 32
8. Represent and solve equations and inequalities graphically.	Lessons 25, 26, 30
9. Create equations and inequalities to represent relationships and use them to solve problems.	Lessons 11, 15, 18, 30
10. Rearrange formulas/equations to highlight a quantity of interest.	Lessons 17, 52
11. Understand the concept of a function and use function notation; interpret key features of graphs and tables in terms of quantities. Evaluate functions for inputs in their domains and interpret statements that use function notation in terms of a context. Write a function that describes a relationship between two quantities.	Lessons 23, 24
12. Understand domain and range of a function.	Lesson 23
13. Write a function that describes a relationship between two quantities, including arithmetic and geometric sequences both respectively and with an explicit formula; use them to model situations, and translate between the two forms.	Lessons 6, 23, 24
14. Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	Lessons 7, 32
15. Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate rate of change from a graph.	Lessons 6, 24, 27
<b>Mathematics Process Categories</b>	
<b>A. Understand mathematical concepts and procedures</b>	
Select appropriate procedures	Throughout
Identify examples and counterexamples of concepts	Throughout
<b>B. Analyze and interpret information</b>	
Make inferences or predictions based on data or information	Throughout
Interpret data from a variety of sources	Throughout
<b>C. Synthesize data and solve problems</b>	
Reason quantitatively	Throughout
Evaluate the reasonableness of solutions	Throughout