

Michigan Grade Level Content Expectations, Grade 7, Correlated to *Glencoe Pre-Algebra*



Lessons in which the Grade Level Content Expectations are a primary focus are indicated in **bold**.

| Grade Level Content Expectation | | Student Edition Lesson(s) |
|---------------------------------|--|--|
| NUMBER AND OPERATIONS | | |
| N.ME.07.01 | Understand derived quantities such as density, velocity, and weighted averages. | Beyond the scope of this program. |
| N.FL.07.02 | Solve problems involving derived quantities. | Beyond the scope of this program. |
| N.FL.07.03 | Calculate rates of change including speed. | 5-3, 6-1 , 8-5 |
| N.MR.07.04 | Convert ratio quantities between different systems of units such as feet per second to miles per hour. | 6-1 |
| N.FL.07.05 | Solve simple proportion problems using such methods as unit rate, scaling, finding equivalent fractions, and solving the proportion equation $a/b = c/d$; know how to see patterns about proportional situations in tables. | 4-5, 6-2 , 6-3, 6-7, 9-7 |
| N.MR.07.06 | Understand the concept of square root and cube root, and estimate using calculators. | 9-1 , 9-2 |
| N.FL.07.07 | Solve problems involving operations with integers. | 1-1, 1-2 , 2-1 , 2-2, 2-3, 2-4, 2-5 |
| N.FL.07.08 | Add, subtract, multiply and divide negative rational numbers. | 2-2, 2-3, 2-4, 2-5, 5-3 , 5-4 , 5-5 , 5-7 , 5-9 |
| N.FL.07.09 | Estimate results of computations with rational numbers. | 6-6 |
| ALGEBRA | | |
| A.PA.07.01 | Recognize when information given in a table, graph, or formula suggests a proportional or linear relationship. | 8-2, 8-5, 8-7, 13-5 |
| A.RP.07.02 | Represent directly proportional and linear relationships using verbal descriptions, tables, graphs, and formulas, and translate among these representations. | 8-3, 8-6, 8-7 |
| A.PA.07.03 | Given a directly proportional or linear situation, graph and interpret the slope and intercept(s) in terms of the original situation; evaluate $y = kx$ for specific x values, given k , e.g., weight vs. volume of water, base cost plus cost per unit. | 8-3, 8-4, 8-5 , 8-6, 8-7 |

PS = Prerequisite Skill, P = Preview Lesson, F = Follow-Up Lesson

| | Grade Level Content Expectation | Student Edition Lesson(s) |
|-------------------|---|--|
| A.PA.07.04 | For directly proportional or linear situations, solve applied problems using graphs and equations, e.g., the heights and volume of a container with uniform cross-section, height of water in a tank being filled at a constant rate, degrees Celsius and degrees Fahrenheit, distance and time under constant speed. | 8-5, 8-7, 8-8 |
| A.PA.07.05 | Understand and use directly proportional relationships of the form $y = mx$, and distinguish from linear relationships of the form $y = mx + b$, b non-zero; understand that in a directly proportional relationship between two quantities one quantity is a constant multiple of the other quantity. | 8-5, 8-7 |
| A.PA.07.06 | Calculate the slope from the graph of a linear function as the ratio of “rise/run” for a pair of points on the graph, and express the answer as a fraction and a decimal; understand that linear functions have slope that is a constant rate of change. | 8-4 , 8-5, 8-6, 8-7 , 13-5 |
| A.PA.07.07 | Represent linear functions in the form $y = x + b$, $y = mx$, and $y = mx + b$, and graph, interpreting slope and y-intercept. | 8-3, 8-4, 8-6, 8-7 , 8-8 |
| A.FO.07.08 | Know that the solution to a linear equation corresponds to the point at which its graph crosses the x-axis. | Beyond the scope of this program. |
| A.PA.07.09 | Recognize inversely proportional relationships in contextual situations; know that quantities are inversely proportional if their product is constant, e.g., the length and width of a rectangle with fixed area, and that an inversely proportional relationship is of the form $y = k/x$ where k is some non-zero number. | Beyond the scope of this program. |
| A.RP.07.10 | Know that the graph of $y = k/x$ is not a line; know its shape; and know that it crosses neither the x nor the y-axis. | 13-5 |
| A.PA.07.11 | Understand and use basic properties of real numbers: additive and multiplicative identities, additive and multiplicative inverses, commutativity, associativity, and the distributive property of multiplication over addition. | 1-2, 1-3, 1-4 , 3-1 , 7-2 |
| A.FO.07.12 | Add, subtract, and multiply simple algebraic expressions of the first degree, e.g., $(92x + 8y) - 5x + y$, or $-2x(5x - 4)$, and justify using properties of real numbers. | 3-2 , 4-6 , 13-2 , 13-3 , 13-4 |
| A.FO.07.13 | From applied situations, generate and solve linear equations of the form $ax + b = c$ and $ax + b = cx + d$, and interpret solutions. | 3-3 , 3-4 , 3-5 , 3-6 , 7-1 , 7-2, 8-3, 8-4 |

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| Grade Level Content Expectation | | Student Edition Lesson(s) |
|---------------------------------|---|-----------------------------------|
| GEOMETRY | | |
| G.SR.07.01 | Use a ruler and other tools to draw squares, rectangles, triangles and parallelograms with specified dimensions. | 9-4, 10-6F |
| G.SR.07.02 | Use compass and straightedge to perform basic geometric constructions: the perpendicular bisector of a segment, an equilateral triangle, and the bisector of an angle; understand informal justifications. | Beyond the scope of this program. |
| G.TR.07.03 | Understand that in similar polygons, corresponding angles are congruent and the ratios of corresponding sides are equal; understand the concepts of similar figures and scale factor. | 9-7, 11-6P, 11-6 |
| G.TR.07.04 | Solve problems about similar figures and scale drawings. | 6-3, 9-7, 11-6 |
| G.TR.07.05 | Show that two triangles are similar using the criteria: corresponding angles are congruent (AAA similarity); the ratios of two pairs of corresponding sides are equal and the included angles are congruent (SAS similarity); ratios of all pairs of corresponding sides are equal (SSS similarity); use these criteria to solve problems and to justify arguments. | 9-7 |
| G.TR.07.06 | Understand and use the fact that when two triangles are similar with scale factor of r , their areas are related by a factor of r^2 . | Beyond the scope of this program. |
| DATA AND PROBABILITY | | |
| D.RE.07.01 | Represent and interpret data using circle graphs, stem and leaf plots, histograms, and box-and-whisker plots, and select appropriate representation to address specific questions. | 12-1, 12-3, 12-4, 12-4F |
| D.AN.07.02 | Create and interpret scatter plots and find line of best fit and use an estimated line of best fit to answer questions about the data. | 1-7, 1-7F, 8-8 |
| D.AN.07.03 | Calculate and interpret relative frequencies and cumulative frequencies for given data sets. | 12-4 |
| D.AN.07.04 | Find and interpret the median, quartiles, and interquartile range of a given set of data. | 5-8, 12-2 |

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