

NORTH MONTCO TECHNICAL CAREER CENTER

PDE MATH ELIGIBLE CONTENT CROSSWALK TO ASSESSMENT ANCHORS

Eligible Content	Assessment Anchors	Assessment Anchor	Academic Standard
Reporting Category: M11.A Numbers and Operations			
<p>M11.A.1.1.1 Find the square root of an integer to the nearest tenth using either a calculator or estimation.</p> <p>M11.A.1.1.2 Express numbers and/or simplify expressions using scientific notation (including numbers less than 1).</p> <p>M11.A.1.1.3 Simplify square roots. (e.g., $\sqrt{24} = 2\sqrt{6}$)</p>	<p>M11.A.1.1 Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, square roots, exponents and scientific notation).</p>	<p>M11.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.</p>	<p>2.1.8.A, 2.1.8.B 2.1.11.A</p>
<p>M11.A.1.2.1 Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.</p>	<p>M11.A.1.2 Apply number theory concepts to show relationships between real numbers in problem solving settings.</p>	<p>M11.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.</p>	<p>2.1.8.E</p>
<p>M11.A.1.3.1 Locate/identify irrational numbers at the approximate location on a number line.</p> <p>M11.A.1.3.2 Compare and/or order any real numbers (rational and irrational may be mixed).</p>	<p>M11.A.1.3 Estimate the value of an irrational number.</p>	<p>M11.A.1 Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers and number systems.</p>	<p>2.2.8.C</p>
<p>M11.A.2.1.1 Solve problems using operations with rational numbers including rates and percents (single and multi-step and multiple procedure operations) (e.g., distance, work and mixture problems, etc.).</p> <p>M11.A.2.1.2 Solve problems using direct and inverse proportions.</p> <p>M11.A.2.1.3 Identify and/or use proportional relationships in problem solving settings.</p>	<p>M11.A.2.1 Apply ratio and/or proportion in problem-solving situations.</p>	<p>M11.A.2 Understand the meanings of operations, use operations and understand how they relate to each other</p>	<p>2.2.11.A 2.8.11.P</p>

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Reporting Category: M11.A Numbers and Operations			
<p>M11.A.2.2.1 Simplify/evaluate expressions involving positive and negative exponents, roots and/or absolute value (may contain all types of real numbers - exponents should not exceed power of 10).</p> <p>M11.A.2.2.2 Simplify/evaluate expressions involving multiplying with exponents (e.g. $x^6 \cdot x^7 = x^{13}$), powers of powers (e.g., $(x^6)^7 = x^{42}$) and powers of products $(2x^2)^3 = 8x^6$ (positive exponents only).</p>	<p>M11.A.2.2 Use exponents, roots and/or absolute value to solve problems.</p>	<p>M11.A.2 Understand the meanings of operations, use operations and understand how they relate to each other.</p>	2.1.11.A
<p>M11.A.3.1.1 Simplify/evaluate expressions using the order of operations to solve problems (any rational numbers may be used).</p>	<p>M11.A.3.1 Apply the order of operations in computation and in problem-solving situations.</p>	<p>M11.A.3 Compute accurately and fluently and make reasonable estimates.</p>	2.2.8.A
<p>M11.A.3.2.1 Use estimation to solve problems.</p>	<p>M11.A.3.2 Use estimation strategies in problem-solving situations</p>	<p>M11.A.3 Compute accurately and fluently and make reasonable estimates.</p>	2.2.11.B, 2.2.11.D
Reporting Category: M11.B Measurement			
Not assessed at grade 11.		<p>M11.B.1 Demonstrate an understanding of measurable attributes of objects and figures, and the units, systems and processes of measurement.</p>	
<p>M11.B.2.1.1 Measure and/or compare angles in degrees (up to 360°) (protractor must be provided or drawn).</p>	<p>M11.B.2.1 Use and/or compare measurements of angles.</p>	<p>M11.B.2 Apply appropriate techniques, tools and formulas to determine measurements.</p>	2.3.11.A 2.3.11.B

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Reporting Category: M11.B Measurement			
<p>M11.B.2.2.1 Calculate the surface area of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet.</p> <p>M11.B.2.2.2 Calculate the volume of prisms, cylinders, cones, pyramids and/or spheres. Formulas are provided on the reference sheet.</p> <p>M11.B.2.2.3 Estimate area, perimeter or circumference of an irregular figure.</p> <p>M11.B.2.2.4 Find the measurement of a missing length given the perimeter, circumference, area or volume.</p>	<p>M11.B.2.2 Use and/or develop procedures to determine or describe measures of perimeter, circumference, area, surface area and/or volume. (May require conversions within the same system.)</p>	<p>M11.B.2 Apply appropriate techniques, tools and formulas to determine measurements.</p>	<p>2.3.8.A, 2.3.8.D</p>
<p>M11.B.2.3.1 Describe how a change in the linear dimension of a figure affects its perimeter, circumference, area or volume.</p> <ul style="list-style-type: none"> • How does changing the length of the radius of a circle affect the circumference of the circle? • How does changing the length of the edge of a cube affect the volume of the cube? • How does changing the length of the base of a triangle affect the area of the triangle? 	<p>M11.B.2.3 Describe how a change in one dimension of a figure (2 or 3 dimensional) affects other measurements of that figure.</p>	<p>M11.B.2 Apply appropriate techniques, tools and formulas to determine measurements.</p>	<p>2.3.8.E</p>
Reporting Category: M11.C Geometry			
<p>M11.C.1.1.1 Identify and/or use the properties of a radius, diameter and/or tangent of a circle (given numbers should be whole.)</p> <p>M11.C.1.1.2 Identify and/or use the properties of arcs, semicircles, inscribed angles and/or central angles.</p>	<p>M11.C.1.1 Identify and/or use parts of circles and segments associated with circles.</p>	<p>M11.C.1 Analyze characteristics and properties of two- and three- dimensional geometric shapes and demonstrate understanding of geometric relationships.</p>	<p>2.9.11.F</p>

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Reporting Category: M11.C Geometry			
<p>M11.C.1.2.1 Identify and/or use properties of triangles (e.g., medians, altitudes, angle bisectors, side/angle relationships, Triangle Inequality Theorem).</p> <p>M11.C.1.2.2 Identify and/or use properties of quadrilaterals (e.g., parallel sides, diagonals, bisectors, congruent sides/angles and supplementary angles).</p> <p>M11.C.1.2.3 Identify and/or use properties of isosceles and equilateral triangles.</p>	<p>M11.C.1.2 Recognize and/or apply properties of angles, triangles and quadrilaterals.</p>	<p>M11.C.1 Analyze characteristics and properties of two- and three- dimensional geometric shapes and demonstrate understanding of geometric relationships.</p>	<p>2.9.8.D 2.9.11.C</p>
<p>M11.C.1.3.1 Identify and/or use properties of congruent and similar polygons or solids.</p>	<p>M11.C.1.3 Use properties of congruence, correspondence and similarity in problem-solving settings involving two- and three-dimensional figures.</p>	<p>M11.C.1 Analyze characteristics and properties of two- and three- dimensional geometric shapes and demonstrate understanding of geometric relationships.</p>	<p>2.9.11.B</p>
<p>M11.C.1.4.1 Find the measure of a side of a right triangle using the Pythagorean Theorem (Pythagorean Theorem included on the reference sheet).</p>	<p>M11.C.1.4 Solve problems involving right triangles using the Pythagorean Theorem.</p>	<p>M11.C.1 Analyze characteristics and properties of two- and three- dimensional geometric shapes and demonstrate understanding of geometric relationships.</p>	<p>2.10.11.B</p>
Not assessed at grade 11.		<p>M11.C.2 Identify and/or apply concepts of transformations or symmetry.</p>	
<p>M11.C.3.1.1 Calculate the distance and/or midpoint between 2 points on a number line or on a coordinate plane (formula provided on the reference sheet).</p> <p>M11.C.3.1.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic expressions; slope formula provided on the reference sheet).</p>	<p>M11.C.3.1 Solve problems using analytic geometry.</p>	<p>M11.C.3 Locate points or describe relationships using the coordinate plane.</p>	<p>2.9.11.G</p>

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Reporting Category: M11.D Algebraic Concepts			
<p>M11.D.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.</p> <p>M11.D.1.1.2 Determine if a relation is a function given a set of points or a graph.</p> <p>M11.D.1.1.3 Identify the domain, range or inverse of a relation (may be presented as ordered pairs or a table).</p>	<p>M11.D.1.1 Analyze and/or use patterns or relations.</p>	<p>M11.D.1 Demonstrate an understanding of patterns, relations and functions.</p>	<p>2.8.11.Q, 2.8.11.A, 2.8.11.O</p>
<p>M11.D.2.1.1 Solve compound inequalities and/or graph their solution sets on a number line (may include absolute value inequalities).</p> <p>M11.D.2.1.2 Identify or graph functions, linear equations or linear inequalities on a coordinate plane.</p> <p>M11.D.2.1.3 Write, solve and/or apply a linear equation (including problem situations).</p> <p>M11.D.2.1.4 Write and/or solve systems of equations using graphing, substitution and/or elimination (limit systems to 2 equations).</p> <p>M11.D.2.1.5 Solve quadratic equations using factoring (integers only – not including completing the square or the Quadratic Formula).</p>	<p>M11.D.2.1 Write, solve and/or graph linear equations and inequalities using various methods.</p>	<p>M11.D.2 Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.</p>	<p>2.8.8.F 2.8.11.D 2.8.11.H 2.8.11.J 2.8.11.N 2.8.11.L, 2.8.11.K</p>

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Reporting Category: M11.D Algebraic Concepts			
<p>M11.D.2.2.1 Add, subtract and/or multiply polynomial expressions (express answers in simplest form – nothing larger than a binomial multiplied by a trinomial).</p> <p>M11.D.2.2.2 Factor algebraic expressions, including difference of squares and trinomials (trinomials limited to the form ax^2+bx+c where a is not equal to 0).</p> <p>M11.D.2.2.3 Simplify algebraic fractions.</p>	<p>M11.D.2.2 Simplify expressions involving polynomials.</p>	<p>M11.D.2 Represent and/or analyze mathematical situations using numbers, symbols, words, tables and/or graphs.</p>	<p>2.8.11.S</p>
<p>M11.D.3.1.1 Identify, describe and/or use constant or varying rates of change.</p> <p>M11.D.3.1.2 Determine how a change in one variable relates to a change in a second variable (e.g., $y=4/x$, if x doubles, what happens to y?).</p>	<p>M11.D.3.1 Describe and/or determine change.</p>	<p>M11.D.3 Analyze change in various contexts.</p>	<p>2.8.8.J 2.11.8.B</p>
<p>M11.D.3.2.1 Apply the formula for the slope of a line to solve problems (formula given on reference sheet).</p> <p>M11.D.3.2.2 Given the graph of the line, 2 points on the line, or the slope and a point on a line, write or identify the linear equation in point-slope, standard and/or slope-intercept form.</p> <p>M11.D.3.2.3 Compute the slope and/or y-intercept represented by a linear equation or graph.</p>	<p>M11.D.3.2 Compute and/or use the slope of a line.</p>	<p>M11.D.3 Analyze change in various contexts</p>	<p>2.8.11.J 2.8.11.L</p>
<p>M11.D.4.1.1 Match the graph of a given function to its table or equation.</p>	<p>M11.D.4.1 Interpret and/or use linear, quadratic and/or exponential functions and their equations, graphs or tables.</p>	<p>M11.D.4 Describe or use models to represent quantitative relationships.</p>	<p>.8.11.K 2.8.11.Q</p>

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Reporting Category: M11.E Data Analysis and Probability			
<p>M11.E.1.1.1 Create and/or use appropriate graphical representations of data, including box-and-whisker plots, stem-and-leaf plots or scatter plots.</p> <p>M11.E.1.1.2 Analyze data and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots or scatter plots).</p>	<p>M11.E.1.1 Appropriately display and/or use data in problem-solving settings.</p>	<p>M11.E.1 Formulate or answer questions that can be addressed with data and/or organize, display, interpret or analyze data.</p>	<p>2.6.11.A, 2.6.8.E</p>
<p>M11.E.2.1.1 Calculate or select the appropriate measure of central tendency (mean, mode or median) of a set of data given or represented on a table, line plot or stem-and-leaf plot.</p> <p>M11.E.2.1.2 Calculate and/or interpret the range, quartiles and interquartile range of data.</p> <p>M11.E.2.1.3 Describe how outliers affect measures of central tendency.</p>	<p>M11.E.2.1 Use measures of central tendency to describe a set of data.</p>	<p>M11.E.2 Select and/or use appropriate statistical methods to analyze data.</p>	<p>2.6.8.A 2.6.11.A</p>
<p>M11.E.3.1.1 Find probabilities for independent, dependent or compound events and represent as a fraction, decimal or percent).</p> <p>M11.E.3.1.2 Find, convert and/or compare the probability and/or odds of a simple event.</p>	<p>M11.E.3.1 Apply probability and/or odds to practical situations.</p>	<p>M11.E.3 Understand and/or apply basic concepts of probability or outcomes.</p>	<p>2.7.11.A 2.7.11.E</p>
<p>M11.E.3.2.1 Determine the number of permutations and/or combinations or apply the fundamental counting principle. (Formula provided on the reference sheet).</p>	<p>M11.E.3.2 Apply counting techniques in problem-solving settings.</p>	<p>M11.E.3 Understand and/or apply basic concepts of probability or outcomes.</p>	<p>2.7.8.A</p>

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Reporting Category: M11.E Data Analysis and Probability			
M11.E.4.1.1 Estimate or calculate to make predictions based on a circle, line, bar graph or given situation. M11.E.4.1.2 Use probability to predict outcomes.	M11.E.4.1 Make predictions using data displays and probability.	M11.E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.	2.7.8.E 2.6.11.D
M11.E.4.2.1 Draw, find and/or write an equation for a line of best fit for a scatter plot. M11.E.4.2.2 Make predictions using the equations or graphs of best-fit lines of scatter plots.	M11.E.4.2 Analyze and/or interpret data on a scatter plot and/or use a scatter plot to make predictions.	M11.E.4 Develop and/or evaluate inferences and predictions or draw conclusions based on data or data displays.	2.6.11.C 2.6.11.D