Pecos Valley Mathematics Outline—Course 2

NM State Standards

|  |  |
| --- | --- |
| Standard | Unit  **Bold—primary**  Non-bold—secondary  TESTED |
| **9-12.A.1.1** Use the special symbols of mathematics correctly and precisely—Vector, theta, transformation subscripts, infinity, interval notation, geometry notation for congruence, parallel, and perpendicular | Unit 1 |
| **9-12.A.1.2** Classify and use equivalent representations of natural, whole, integer, rational, **irrational numbers** and complex numbers, and choose which type of number is appropriate in a given context. | Unit 1 |
| **9-12.A.1.8** Solve formulas for specified variables. | Unit 1 |
| **9-12.A.1.9** Solve quadratic equations in one variable. | Unit 4 |
| **9-12A.1.10** Solve radical equations involving one radical. | Unit 5 |
| **9-12.A.1.11** Describe the properties of rational exponents and apply these properties to simplify algebraic expressions. | Unit 5 |
| **9-12.A.1.15** Compare and order polynomial expressions by degree. | Unit 1 |
| **9-12.A.2.7** Graph a linear inequality in two variables. | Unit 3 |
| **9-12.A.2.9** Graph exponential functions and identify their key characteristics as related to contextual situations. (specifically y=3x and y=a\*bx ) | Unit 5 |
| **9-12.A.2.10** Identify and describe symmetries of graphs. | Unit 4/5 |
| **9-12.A.3.1** Model real-world phenomena using linear equations and **linear inequalities** interpret resulting solutions, and use estimation to detect errors. | Unit 3 |
| **9-12.A.3.2** Model real-world phenomena using quadratic equations, interpret resulting solutions, and use estimation to detect errors. | Unit 4 |
| **9-12.A.3.4** Solve systems of linear equations in two variables algebraically and graphically | Unit 3 |
| **9-12.A.3.5** Solve applications involving systems of two equations in two variables. | Unit 3 |
| **9-12.A.3.8** Determine whether the graphs of two given linear equations are parallel, perpendicular, coincide or none of these. | Unit 3 |
| **9-12.G.1.3** Draw three-dimensional objects and calculate the surface areas and volumes of these figures (e.g. prisms, cylinders, pyramids, cones, spheres) as well as figures constructed from unions of prisms with faces in common, given the formulas for these figures. | Unit 2 |
| **9-12.G.1.6** Use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute a universal statement. | Unit 6 |
| **9-12.G.1.7** Explain the difference between inductive and deductive reasoning and provide examples of each. | Unit 6 |
| **9-12.G.1.8** Explain why, for inductive reasoning, showing a statement is true for a finite number of examples does not show it is true for all cases unless the cases verified are all possible cases. | Unit 6 |
| **9-12.G.2.3** Use basic geometric ideas (e.g., the Pythagorean theorem, area and perimeter) in the context of the Cartesian coordinate plane (e.g., calculate the perimeter of a rectangle with integer coordinates and with sides parallel to the coordinate axes, and of a rectangle with sides not parallel). | Unit 2 |
| **9-12.G.3.1** Use rigid motions (compositions of reflections, translations and rotations) to determine whether two geometric figures are congruent in a coordinate plane. | Unit 2 |
| **9-12.G.3.2** Sketch a planar figure that is the result of given transformations (i.e., translation, reflection, rotation, and/or dilation). | Unit 2 |
| **9-12.G.3.3** Identify similarity in terms of transformations. | Unit 2 |
| **9-12.G.3.4** Determine the effects of transformations on linear and area measurements of the original planar figure. | Unit 2 |
| **9-12.G.4.1** Solve contextual problems using congruence and similarity relationships of triangles (e.g., find the height of a pole given the length of its shadow). | Unit 2 |
| **9-12.G.4.3** Know that the effect of a scale factor *k* on length, area and volume is to multiply each by *k, k*² and *k*³, respectively. | Unit 2 |
| **9-12.G.4.**5 Understand how similarity of right triangles allows the trigonometric functions sine, cosine and tangent to be defined as ratios of sides and be able to use these functions to solve problems. | Unit 2 |
| **9-12.G.4.6** Apply basic trigonometric functions to solve right-triangle problems. | Unit 2 |
| **9-12.G.4.7** Use angle and side relationships in problems with special right triangles (e.g., 30-, 60-, 90-, and 45-, 45-, 90- degree triangles). | Unit 2 |
| **9-12.G.4.8** Describe the intersections of a line and a plane, intersections of lines in the plane and in space, or of two planes in space. | Unit 3 |
| **9-12.D.1.2** Describe the characteristics of a well-designed and well-conducted survey by differentiating between sampling and census, and a biased and unbiased sample. | Unit 6 |
| **9-12.D.1.3** Describe the characteristics of a well-designed and well-conducted experiment by differentiating between experiments and observational studies, and recognizing the sources of bias in poorly designed experiments. | Unit 6 |
| **9-12.D.1.4** Explain the role of randomization in well-designed surveys and experiments. | Unit 6 |
| **9-12.D.2.5** Compare distributions of univariate data using back-to-back stem and leaf plots and parallel box and whisker plots. | Unit 1 |
| **9-12.D.2.8** Describe the shape of a **scatterplot.** | Unit 1 |
| **9-12.D.2.12** Explain why correlation does not imply a cause-and-effect relationship. | Unit 1 |
| **9-12.D.3.4** Compute the probability of an event using the complement rule, addition rule for disjoint and joint events, multiplication rule for independent events, and rules for conditional probability. | Unit 6 |