 **South Dakota Grade 8 Mathematics Threshold Descriptors**

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| **Priority Cluster: Expressions and Equations (Target(s) B,D,C)** |
| Threshold Level 2 | Threshold Level 3 | Threshold Level 4 |
|  Find the cube of one-digit numbers and the cube root of perfect cubes (less than 1,000). Use appropriate tools (e.g., calculator, pencil and paper) to translate large numbers from scientific to standard notation. Identify the *y*-intercept and calculate the slope of a line from an equation or graph. Graph a system of linear equations and identify the solution as the point of intersection. |  Solve simple quadratic monomial equations and represent the solution as a square root. Work with and perform operations with scientific notation of large numbers. Identify unit rate of change in linear relationships (i.e., slope is the rate of change). Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms and equations with infinitely many solutions or no solution. Solve a system of linear equations with integer coefficients using an algebraic strategy. |  Write a system of two linear equations with two variables to represent a context. |

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| **Priority Cluster: Function (Target(s) E,F,)** |
| Threshold Level 2 | Threshold Level 3 | Threshold Level 4 |
|  Identify whether an input/output pair satisfies a function. Compare properties of two linear functions represented in the same way (algebraically, graphically, or in a table). Construct a table to represent a linear relationship between two quantities. Qualitatively describe a graph of a linear function |  Classify functions as linear or nonlinear on the basis of the algebraic representation. Determine the rate of change and the initial value of a function. Know linear equations of the form *y* = *mx* + *b* are functions. Compare properties of two linear functions represented in different ways (algebraically, graphically, or in a table). |  Interpret the rate of change and initial value of a linear function in terms of its graph. |

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| **Priority Cluster: Geometry (Target(s) G,H)** |
| Threshold Level 2 | Threshold Level 3 | Threshold Level 4 |
|  Construct reflections across an axis and translations of figures in a coordinate plane. |  Predict the location of point P after a transformation. Know that sequences of translations, rotations, and reflections on a figure always result in a congruent figure. Construct rotations of figures in a coordinate plane |  Describe the impact of two transformations, including a dilation, on a figure. Identify or draw the relevant right triangle in a three-dimensional figure, given coordinates or a diagram. |

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| **Support Cluster: The Number System (Target(s) A)** |
| Threshold Level 2 | Threshold Level 3 | Threshold Level 4 |
| * Identify numbers as rational or irrational.
 | * Convert from fractions to repeating decimals. Use rational approximations of familiar irrational numbers to make numerical comparisons.
 |  Approximate irrational numbers between two integers to a specified level of precision. |

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| **Support Cluster: Geometry (Target(s) I)** |
| Threshold Level 2 | Threshold Level 3 | Threshold Level 4 |
|  Identify the appropriate formula for the volume of a cylinder and connect the key dimensions to the appropriate location in the formula. |  Calculate the volume of a cylinder in direct and familiar mathematical and real-world problems. |  Solve unfamiliar or multi-step problems involving volumes of cylinders. |

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| **Support Cluster: Statistics and Probability (Target(s) J)** |
| Threshold Level 2 | Threshold Level 3 | Threshold Level 4 |
|  Identify what a linear pattern looks like from a given scatter plot. |  Describe outliers for a given scatter plot. |  Use the trend line or line of best fit to make predictions in real-world situations. |