

Nebraska State Mathematics Test Table of Specifications

Grade 8

NUMBER SENSE

Gr8 Number System	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.1.1 Students will represent and show relationships among real numbers.					
<i>MA 8.1.1.a Compare and order real numbers</i>	2	0	1-2	0	1-2
<i>MA 8.1.1.b Demonstrate relative position of real numbers on the number line</i>	Assessed at the local level				
<i>MA 8.1.1.c Represent small numbers using scientific notation</i>	2	0-1	1-2	0	1-3
<i>MA 8.1.1.d Classify numbers as natural, whole, integer, rational, irrational, or real</i>	1	1-2	0	0	1-2
Gr8 Operations	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.1.2 Students will demonstrate the meaning of arithmetic operations with integers.					
<i>MA 8.1.2.a Use drawings, words, and symbols to explain the meaning of addition, subtraction, multiplication, and division of integers</i>	Assessed at the local level				
<i>MA 8.1.2.b Use words and symbols to explain the zero property of multiplication</i>	Assessed at the local level				
<i>MA 8.1.2.c Use words and symbols to explain why division by zero is undefined</i>	Assessed at the local level				
Gr8 Computation	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.1.3 Students will compute fluently and accurately using appropriate strategies and tools.					
<i>MA 8.1.3.a Compute accurately with rational numbers</i>	1	2-4	0	0	2-4
<i>MA 8.1.3.b Evaluate expressions involving absolute value of integers</i>	1	1-3	0	0	1-3
<i>MA 8.1.3.c Calculate squares of integers, the square roots of perfect squares, and the square roots of whole numbers using technology</i>	Assessed at the local level				
<i>MA 8.1.3.d Select, apply, and explain the method of computation when problem solving using rational numbers</i>	2	0-1	2-3	0	2-4
<i>MA 8.1.3.e Solve problems involving ratios and proportions</i>	2	0-1	2-3	0	2-4

Gr8 Estimation	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.1.4 Students will estimate and check reasonableness of answers using appropriate strategies and tools.					
<i>MA 8.1.4.a Use estimation methods to check the reasonableness of solutions for problems involving rational numbers</i>	2	0-1	1-2	0	1-3
GEOMETRIC/MEASUREMENT CONCEPTS					
Gr8 Characteristics	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.2.1 Students will describe, compare, and contrast characteristics, properties, and relationships of geometric shapes and objects.					
<i>MA 8.2.1.a Identify and describe similarity of three-dimensional objects</i>	Assessed at the local level				
<i>MA 8.2.1.b Compare and contrast relationships between similar and congruent objects</i>	Assessed at the local level				
<i>MA 8.2.1.c Identify geometric properties of parallel lines cut by a transversal and related angles</i>	1	2-4	0	0	2-4
<i>MA 8.2.1.d Identify pairs of angles</i>	1	2-4	0	0	2-4
<i>MA 8.2.1.e Examine the relationships of the interior angles of a triangle</i>	2	0-1	1-2	0	1-3
Gr8 Coordinate Geometry	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.2.2 Students will specify locations and describe spatial relationships using coordinate geometry.					
<i>MA 8.2.2.a Use coordinate geometry to represent and examine the properties of rectangles and squares using horizontal and vertical segments</i>	2	0-1	1-2	0	1-3
Gr8 Transformations	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.2.3 Students will perform transformations and use them to analyze the orientation and size of geometric shapes.					
<i>MA 8.2.3.a Identify the similarity of dilated shapes</i>	Assessed at the local level				
<i>MA 8.2.3.b Perform and describe positions and sizes of shapes under dilations</i>	Assessed at the local level				
Gr8 Spatial Modeling	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.2.4 Students will use visualization, spatial reasoning, and geometric modeling to solve problems.					

<i>MA 8.2.4.a Draw geometric objects with specified properties</i>	Assessed at the local level				
Gr8 Measurement	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.2.5 Students will select and apply appropriate procedures, tools, and formulas to determine measurements.					
<i>MA 8.2.5.a Use strategies to find the perimeter and area of complex shapes</i>	Assessed at the local level				
<i>MA 8.2.5.b Determine surface area and volume of three-dimensional objects</i>	Assessed at the local level				
MA 8.2.5.c Apply the Pythagorean theorem to find missing lengths in right triangles and to solve problems	2	0-1	2-3	0	2-4
MA 8.2.5.d Use scale factors to find missing lengths in similar shapes	1	1-3	0	0	1-3
<i>MA 8.2.5.e Convert between metric and standard units of measurement, given conversion factors</i>	Assessed at the local level				
ALGEBRAIC CONCEPTS					
Gr8 Relationships	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.3.1 Students will represent and analyze relationships using algebraic symbols.					
<i>MA 8.3.1.a Represent and analyze a variety of patterns with tables, graphs, words, and algebraic equations</i>	Assessed at the local level				
MA 8.3.1.b Describe relationships using algebraic expressions, equations, and inequalities	2	0-1	2-4	0	2-5
<i>MA 8.3.1.c Identify constant slope from tables and graphs</i>	Assessed at the local level				
Gr8 Modeling in Context	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.3.2 Students will create, use, and interpret models of quantitative relationships.					
MA 8.3.2.a Model contextualized problems using various representations	3	0	2-3	1-2	3-5
<i>MA 8.3.2.b Represent a variety of quantitative relationships using algebraic expressions and two-step/one-step variable equations</i>	Assessed at the local level				
Gr8 Procedures	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.3.3 Students will apply properties to solve equations and inequalities.					
<i>MA 8.3.3.a Explain the multiplicative inverse</i>	Assessed at the local level				

MA 8.3.3.b Evaluate numerical expressions containing whole number exponents	2	1-3	1-2	0	2-5
MA 8.3.3.c Solve multi-step equations involving rational numbers	2	0-1	2-4	0	2-5
MA 8.3.3.d Solve two-step inequalities involving rational numbers	2	0-1	2-4	0	2-5
<i>MA 8.3.3.e Identify and explain the properties used in solving two-step inequalities and multi-step equations</i>	Assessed at the local level				
DATA ANALYSIS/PROBABILITY CONCEPTS					
Gr8 Display and Analysis	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.4.1 Students will formulate questions that can be addressed with data, and then organize, display, and analyze the relevant data to answer their questions.					
<i>MA 8.4.1.a Represent data using circle graphs and box plots with and without the use of technology</i>	Assessed at the local level				
MA 8.4.1.b Compare characteristics between sets of data or within a given set of data	3	0	1-2	1-2	2-4
<i>MA 8.4.1.c Find, interpret, and compare measures of central tendency (mean, median, and mode) and the quartiles for sets of data</i>	Assessed at the local level				
MA 8.4.1.d Select the most appropriate unit of central tendency for sets of data	2	0-1	1-2	0	1-3
MA 8.4.1.e Identify misrepresentation and misinterpretation of data represented in circle graphs and box plots	2	0-1	1-2	0	1-3
Gr8 Predictions and Inferences	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.4.2 Students will evaluate predictions and make inferences based on data.					
<i>MA 8.4.2.a Evaluate predictions to formulate new questions and plan new studies</i>	Assessed at the local level				
<i>MA 8.4.2.b Compare and contrast two sets of data to make inferences</i>	Assessed at the local level				
Gr8 Probability	DOK Level	DOK 1	DOK 2	DOK 3	Item Total
MA 8.4.3 Students will apply and interpret basic concepts of probability.					
MA 8.4.3.a Identify complementary events and calculate their probabilities	2	0-1	1-2	0	1-3
MA 8.4.3.b Compute probabilities for independent compound events	2	0-1	1-2	0	1-3