MINNESOTA TEACHER LICENSURE EXAMINATIONS℠ (MTLE)℠

ELEMENTARY EDUCATION (GRADES K–6)
SUBTEST II
MATCH STUDY
MAY 2018

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
10	H(3)(a)–(d), H(7)(a)	K.1.(1)–(2); 1.1.(1)–(2), 1.2.(1); 2.1.(1)–(2), 2.2.(2); 3.1.(1)–(3), 3.2.(2); 4.1.(1)–(2), 4.2.(2); 5.1.(1)–(3), 5.2.(1)–(3); 6.1.(1)–(3), 6.2.(1)–(3), 6.3.(1), 6.3.(3), 6.4.(1)	Curriculum: 2.3 Instruction: 3.1–3.2	Understand numbers, ways of representing numbers, relationships among numbers, and number systems (Pre-K–2, 3–5, 6–8) Understand meanings of operations and how they relate to one another (Pre-K–2, 3–5, 6–8) Compute fluently and make reasonable estimates (Pre-K–2, 3–5, 6–8) Use mathematical models to represent and understand quantitative relationships (Pre-K–2) Represent and analyze mathematical situations and structures using algebraic symbols (Pre-K–2, 3–5) Apply appropriate techniques, tools, and formulas to determine measurements (Pre-K–2, 3–5, 6–8) Understand measurable attributes of objects and the units, systems, and processes of measurement (3–5, 6–8) Use visualization, spatial reasoning, and geometric modeling to solve problems (6–8) Build new mathematical Pre-Knowledge through problem solving (Pre-K–2, 3–5, 6–8) Solve problems that arise in mathematics and in other contexts (Pre-K–2, 3–5, 6–8) Apply and adapt a variety of appropriate strategies to solve problems (Pre-K–2, 3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Monitor and reflect on the process of mathematical problem solving (Pre-K–2, 3–5, 6–8) Organize and consolidate one's own mathematical thinking through communication (Pre-K–2, 3–5, 6–8) Use the language of mathematics to express mathematical ideas precisely (Pre-K–2, 3–5, 6–8) Recognize and use connections among mathematical ideas (Pre-K–2, 3–5, 6–8) Create and use representations to organize, record, and communicate mathematical ideas (Pre-K–2, 3–5, 6–8) Select, apply, and translate among mathematical representations to solve problems (Pre-K–2, 3–5, 6–8) Use representations to model and interpret physical, social, and mathematical phenomena (Pre-K–2, 3–5, 6–8)
11	H(1)(a)–(c)	K.2.(1); 1.2.(1)–(2); 2.1.(2), 2.2.(1)–(2); 3.1.(2), 3.2.(1)–(2); 4.1.(1)–(2), 4.2.(1)–(2); 5.1.(2)–(3), 5.2.(1), 5.2.(3); 6.1.(2)–(3), 6.2.(1), 6.2.(3)	Curriculum: 2.3 Instruction: 3.1, 3.3	Understand meanings of operations and how they relate to one another (3–5, 6–8) Understand patterns, relations, and functions (Pre-K–2, 3–5, 6–8) Analyze change in various contexts (Pre-K–2, 3–5, 6–8) Represent and analyze mathematical situations and structures using algebraic symbols (3–5, 6–8) Use mathematical models to represent and understand quantitative relationships (3–5, 6–8) Build new mathematical knowledge through problem solving (Pre-K–2, 3–5, 6–8) Solve problems that arise in mathematics and in other contexts (Pre-K–2, 3–5, 6–8) Apply and adapt a variety of appropriate strategies to solve problems (Pre-K–2, 3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Monitor and reflect on the process of mathematical problem solving (Pre-K–2, 3–5, 6–8) Organize and consolidate one's own mathematical thinking through communication (Pre-K–2, 3–5, 6–8) Communicate one's own mathematical thinking coherently and clearly to peers, teachers, and others (Pre-K–2, 3–5, 6–8) Use the language of mathematics to express mathematical ideas precisely (Pre-K–2, 3–5, 6–8) Recognize and use connections among mathematical ideas (Pre-K–2, 3–5, 6–8) Understand how mathematical ideas interconnect and build on one another to produce a coherent whole (Pre-K–2, 3–5, 6–8) Recognize and apply mathematics in contexts outside of mathematics (Pre-K–2, 3–5, 6–8) Create and use representations to organize, record, and communicate mathematical ideas (Pre-K–2, 3–5, 6–8) Select, apply, and translate among mathematical representations to solve problems (Pre-K–2, 3–5, 6–8) Use representations to model and interpret physical, social, and mathematical phenomena (Pre-K–2, 3–5, 6–8)
12	H(4)(a)–(c), H(8)(b)	K.3.(1)–(2); 1.3.(1)–(2); 2.3.(1)–(3); 3.3.(1)–(3); 4.3.(1)–(3); 5.1.(3), 5.2.(3), 5.3.(1)–(2); 6.1.(2), 6.3.(1)–(3)	Curriculum: 2.3 Instruction: 3.1, 3.5 Assessment: 4.0 Professionalism: 5.1	Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships (Pre-K–2, 3–5, 6–8) Specify locations and describe spatial relationships using coordinate geometry and other representational systems (Pre-K–2, 3–5, 6–8) Apply transformations and use symmetry to analyze mathematical situations (Pre-K–2, 3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Use visualization, spatial reasoning, and geometric modeling to solve problems (Pre-K–2, 3–5, 6–8) Understand measurable attributes of objects and the units, systems, and processes of measurement (Pre-K–2, 3–5, 6–8) Apply appropriate techniques, tools, and formulas to determine measurements (Pre-K–2, 3–5, 6–8) Build new mathematical knowledge through problem solving (Pre-K–2, 3–5, 6–8) Solve problems that arise in mathematics and in other contexts (Pre-K–2, 3–5, 6–8) Apply and adapt a variety of appropriate strategies to solve problems (Pre-K–2, 3–5, 6–8) Make and investigate mathematical conjectures (Pre-K–2, 3–5, 6–8) Develop and evaluate mathematical arguments and proofs (Pre-K–2, 3–5, 6–8) Organize and consolidate one's own mathematical thinking through communication (Pre-K–2, 3–5, 6–8) Communicate one's own mathematical thinking coherently and clearly to peers, teachers, and others (Pre-K–2, 3–5, 6–8) Use the language of mathematics to express mathematical ideas precisely (Pre-K–2, 3–5, 6–8) Recognize and use connections among mathematical ideas (Pre-K–2, 3–5, 6–8) Understand how mathematical ideas interconnect and build on one another to produce a coherent whole (Pre-K–2, 3–5, 6–8) Recognize and apply mathematics in contexts outside of mathematics (Pre-K–2, 3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Create and use representations to organize, record, and communicate mathematical ideas (Pre-K–2, 3–5, 6–8) Select, apply, and translate among mathematical representations to solve problems (Pre-K–2, 3–5, 6–8) Use representations to model and interpret physical, social, and mathematical phenomena (Pre-K–2, 3–5, 6–8)
13	H(2)(a), H(5)(a)–(d), H(6)(a)–(b), H(7)(b)	3.4.(1); 4.4.(1); 5.1.(3); 5.4.(1); 6.4.(1)	Curriculum: 2.3 Instruction: 3.1, 3.3	Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them (Pre-K–2, 3–5, 6–8) Select and use appropriate statistical methods to analyze data (Pre-K–2, 3–5, 6–8) Develop and evaluate inferences and predictions that are based on data (Pre-K–2, 3–5, 6–8) Understand and apply basic concepts of probability (Pre-K–2, 3–5, 6–8) Build new mathematical knowledge through problem solving (Pre-K–2, 3–5, 6–8) Solve problems that arise in mathematics and in other contexts (Pre-K–2, 3–5, 6–8) Apply and adapt a variety of appropriate strategies to solve problems (Pre-K–2, 3–5, 6–8) Monitor and reflect on the process of mathematical problem solving (Pre-K–2, 3–5, 6–8) Make and investigate mathematical conjectures (Pre-K–2, 3–5, 6–8) Develop and evaluate mathematical arguments and proofs (Pre-K–2, 3–5, 6–8) Select and use various types of reasoning and methods of proof (Pre-K–2, 3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Organize and consolidate one's own mathematical thinking through communication (Pre-K–2, 3–5, 6–8) Communicate one's own mathematical thinking coherently and clearly to peers, teachers, and others (Pre-K–2, 3–5, 6–8) Analyze and evaluate the mathematical thinking and strategies of others (Pre-K–2, 3–5, 6–8) Use the language of mathematics to express mathematical ideas precisely (Pre-K–2, 3–5, 6–8) Recognize and use connections among mathematical ideas (Pre-K–2, 3–5, 6–8) Understand how mathematical ideas interconnect and build on one another to produce a coherent whole (Pre-K–2, 3–5, 6–8) Recognize and apply mathematics in contexts outside of mathematics (Pre-K–2, 3–5, 6–8) Create and use representations to organize, record, and communicate mathematical ideas (Pre-K–2, 3–5, 6–8) Select, apply, and translate among mathematical representations to solve problems (Pre-K–2, 3–5, 6–8) Use representations to model and interpret physical, social, and mathematical phenomena (Pre-K–2, 3–5, 6–8)
14	H(2)(a), H(7)(a)	K.1.(1), 4.4.(1)	Curriculum: 2.3 Instruction: 3.1, 3.3	Use visualization, spatial reasoning, and geometric modeling to solve problems (6–8) Build new mathematical knowledge through problem solving (Pre-K–2, 3–5, 6–8) Solve problems that arise in mathematics and in other contexts (Pre-K–2, 3–5, 6–8) Apply and adapt a variety of appropriate strategies to solve problems (Pre-K–2, 3–5, 6–8) Recognize and use connections among mathematical ideas (Pre-K–2, 3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Understand how mathematical ideas interconnect and build on one another to produce a coherent whole (Pre-K–2, 3–5, 6–8) Recognize and apply mathematics in contexts outside of mathematics (Pre-K–2, 3–5, 6–8) Create and use representations to organize, record, and communicate mathematical ideas (Pre-K–2, 3–5, 6–8) Select, apply, and translate among mathematical representations to solve problems (Pre-K–2, 3–5, 6–8) Use representations to model and interpret physical, social, and mathematical phenomena (Pre-K–2, 3–5, 6–8)
15	H(2)(b), H(4)(c), H(5)(d), H(7)(a)–(d), H(8)(a)–(b)	K.1.(2); 1.1.(2), 1.3.(2); 2.2.(2), 2.3.(3); 3.1.(2), 3.2.(2), 3.3.(3); 4.1.(1)–(2), 4.2.(1)–(2), 4.3.(2), 4.4.(1); 5.1.(1), 5.1.(3), 5.3.(2), 5.4.(1); 6.1.(3), 6.2.(3), 6.3.(1)–(2)	Curriculum: 2.3 Instruction: 3.1, 3.5 Assessment: 4.0 Professionalism: 5.1	Understand numbers, ways of representing numbers, relationships among numbers, and number systems (Pre-K–2) Compute fluently and make reasonable estimates (Pre-K–2, 3–5, 6–8) Understand patterns, relations, and functions (Pre-K–2, 3–5, 6–8) Represent and analyze mathematical situations and structures using algebraic symbols (Pre-K–2, 3–5, 6–8) Analyze change in various contexts (Pre-K–2) Use mathematical models to represent and understand quantitative relationships (6–8) Specify locations and describe spatial relationships using coordinate geometry and other representational systems (Pre-K–2, 3–5) Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships (Pre-K–2, 3–5, 6–8) Use visualization, spatial reasoning, and geometric modeling to solve problems (Pre-K–2, 3–5, 6–8) Apply appropriate techniques, tools, and formulas to determine measurements (3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them (Pre-K–2, 3–5, 6–8) Select and use appropriate statistical methods to analyze data (Pre-K–2, 3–5, 6–8) Develop and evaluate inferences and predictions that are based on data (3–5, 6–8) Understand and apply basic concepts of probability (3–5, 6–8) Build new mathematical knowledge through problem solving (Pre-K–2, 3–5, 6–8) Solve problems that arise in mathematics and in other contexts (Pre-K–2, 3–5, 6–8) Apply and adapt a variety of appropriate strategies to solve problems (Pre-K–2, 3–5, 6–8) Monitor and reflect on the process of mathematical problem solving (Pre-K–2, 3–5, 6–8) Make and investigate mathematical conjectures (Pre-K–2, 3–5, 6–8) Develop and evaluate mathematical arguments and proofs (Pre-K–2, 3–5, 6–8) Select and use various types of reasoning and methods of proof (Pre-K–2, 3–5, 6–8) Organize and consolidate one's own mathematical thinking through communication (Pre-K–2, 3–5, 6–8) Communicate one's own mathematical thinking coherently and clearly to peers, teachers, and others (Pre-K–2, 3–5, 6–8) Analyze and evaluate the mathematical thinking and strategies of others (Pre-K–2, 3–5, 6–8) Use the language of mathematics to express mathematical ideas precisely (Pre-K–2, 3–5, 6–8)

Subarea I Mathematics	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Mathematics 2007	ACEI Elementary Education Standards	NCTM Principles and Standards for School Mathematics
				Recognize and use connections among mathematical ideas (Pre-K–2, 3–5, 6–8) Understand how mathematical ideas interconnect and build on one another to produce a coherent whole (Pre-K–2, 3–5, 6–8) Recognize and apply mathematics in contexts outside of mathematics (Pre-K–2, 3–5, 6–8) Create and use representations to organize, record, and communicate mathematical ideas (Pre-K–2, 3–5, 6–8) Select, apply, and translate among mathematical representations to solve problems (Pre-K–2, 3–5, 6–8) Use representations to model and interpret physical, social, and mathematical phenomena (Pre-K–2, 3–5, 6–8)

Subarea II Health/Fitness	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	ACEI Elementary Education Standards	SHAPE America National Health Education Standards	SHAPE America National Standards & Grade-Level Outcomes for K–12 Physical Education
16	K(1)–(4)	Curriculum: 2.6–2.7 Instruction: 3.1, 3.4	Standard 1: Comprehend concepts related to health promotion and disease prevention to enhance health. Standard 4: Demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks. Standard 5: Demonstrate the ability to use decision-making skills to enhance health. Standard 6: Demonstrate the ability to use goal-setting skills to enhance health. Standard 7: Demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks. Standard 8: Demonstrate the ability to advocate for personal, family, and community health.	Standard 1: Demonstrates competency in a variety of motor skills and movement patterns. Standard 2: Applies knowledge of concepts, principles, strategies and tactics related to movement and performance. Standard 3: Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness. Standard 4: Exhibits responsible personal and social behavior that respects self and others. Standard 5: Recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

Subarea II Fine Arts	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Arts	ACEI Elementary Education Standards	NCCAS National Core Arts Standards
17	L(1)–(5)	K–3—Artistic Foundations: 0.1.1.1.1–5.1, 0.1.2.1.1–2, 0.1.2.2.1–2, 0.1.2.3.1–2, 0.1.2.4.1–5.1, 0.1.3.1.1–5.1 K–3—Artistic Process: Create or Make: 0.2.1.1.1–2, 0.2.1.2.1–2, 0.2.1.3.1–2, 0.2.1.4.1–2, 0.2.1.5.1–2 K–3—Artistic Process: Perform or Present: 0.3.1.1.1–2, 0.3.1.2.1–2, 0.3.1.3.1–2, 0.3.1.4.1–2, 0.3.1.5.1–2 K–3—Artistic Process: Respond or Critique: 0.4.1.1.1–5.1 4–5—Artistic Foundations: 4.1.1.1.1–3, 4.1.1.2.1–3, 4.1.1.3.1–3, 4.1.1.4.1–3, 4.1.1.5.1–3, 4.1.2.1.1–2, 4.1.2.2.1–2, 4.1.2.3.1–2, 4.1.2.4.1, 4.1.2.5.1, 4.1.3.1.1–2, 4.1.3.2.1–2, 4.1.3.3.1–2, 4.1.3.4.1–2, 4.1.3.5.1–2 4–5—Artistic Process: Create or Make: 4.2.1.1.1–2, 4.2.1.2.1–2, 4.2.1.3.1–2, 4.2.1.4.1–2, 4.2.1.5.1–2 4–5—Artistic Process: Perform or Present: 4.3.1.1.1–2, 4.3.1.2.1–2, 4.3.1.3.1–2, 4.3.1.4.1–2, 4.3.1.5.1–2 4–5—Artistic Process: Respond or Critique: 4.4.1.1.1–5.1 6–8—Artistic Foundations: 6.1.1.1.1–3, 6.1.1.2.1–3, 6.1.1.3.1–3, 6.1.1.4.1–3, 6.1.1.5.1–3, 6.1.2.1.1–2, 6.1.2.2.1–2, 6.1.2.3.1–2, 6.1.2.4.1, 6.1.2.5.1, 6.1.3.1.1–2, 6.1.3.2.1–2, 6.1.3.3.1–2, 6.1.3.4.1–2, 6.1.3.5.1–2	Curriculum: 2.5 Instruction: 3.2–5	Anchor Standard 1: Generalize and conceptualize artistic ideas and work Anchor Standard 2: Organize and develop artistic ideas and work Anchor Standard 3: Refine and complete artistic work Anchor Standard 4: Select, analyze, and interpret work for presentation Anchor Standard 5: Develop and refine artistic techniques and work for presentation Anchor Standard 6: Convey meaning through the presentation of artistic work Anchor Standard 7: Perceive and analyze artistic work Anchor Standard 8: Interpret intent and meaning in artistic work Anchor Standard 9: Apply criteria to evaluate artistic work Anchor Standard 10: Synthesize and relate knowledge and personal experiences to make art Anchor Standard 11: Relate artistic ideas and works with societal, cultural, and historical context to deepen understanding

Subarea II Fine Arts	MN Rules for Teachers of Elementary Education 8710.3200 Subject Matter Standards	Minnesota K–12 Academic Standards in Arts	ACEI Elementary Education Standards	NCCAS National Core Arts Standards
		6–8—Artistic Process: Create or Make: 6.2.1.1.1–3, 6.2.1.2.1–3, 6.2.1.3.1–3, 6.2.1.4.1–3, 6.2.1.5.1–3 6–8—Artistic Process: Perform or Present: 6.3.1.1.1–3, 6.3.1.2.1–3, 6.3.1.3.1–3, 6.3.1.4.1–3, 6.3.1.5.1–3 6–8—Artistic Process: Respond or Critique: 6.4.1.1.1–5.1		

Note: Per the Minnesota Board of Teaching Rules and Standards, the content area tests for the Minnesota Teacher Licensure Examinations (MTLE) are to measure primarily the content area knowledge of candidates for teacher licensure. Pedagogical knowledge and skills are assessed through other means, such as the three pedagogical examinations: Early Childhood, Elementary, and Secondary.