MTEL®-Flex General Curriculum Mathematics Subtest—Operations on Numbers (Objective 0019)

Objective 0019: Understand operations on numbers.

Objective 0019 includes the following descriptive statements:

1. Understand the meaning and models of operations on numbers (e.g., integers, fractions, decimals).
2. Analyze and justify standard and nonstandard computational algorithms and mental math techniques (e.g., by application of the arithmetic properties, such as commutative, associative, distributive).
3. Evaluate the validity of nonstandard or unfamiliar computational strategies.
4. Recognize and analyze various representations (e.g., graphic, pictorial, verbal) of number operations.
5. Recognize relationships among operations (e.g., addition and subtraction, addition and multiplication, multiplication and exponentiation).
6. Identify and apply the arithmetic properties and the transitive properties of equality and inequality.
7. Apply the order of operations.
8. Apply the laws of exponents.
9. Demonstrate fluency in arithmetic computation, including operations on fractions.
10. Interpret the concept of absolute value.
11. Apply appropriate strategies (e.g., proportional thinking, ratios) to estimate quantities in real-world situations.
12. Solve problems using arithmetic operations with various representations of numbers.

MTEL®-Flex enables you to demonstrate your functional content knowledge of the MTEL General Curriculum Mathematics Subtest test objectives through submitting materials on a topic that you select. Your submission will be evaluated on the extent to which you demonstrate the depth of your subject matter knowledge of the MTEL-Flex General Curriculum Mathematics Subtest test objective you selected during registration.

MTEL-Flex involves answering 4 prompts and writing an analysis in which you demonstrate your knowledge of the content assessed by the test objective and further elaborated by the descriptive statement(s) you have selected in relation to your stated topic.

Your responses to the first 4 prompts should be **no more than 1 single-spaced page** and your written analysis should be **no more than 3 single-spaced pages.** This instructions page does not count toward your page limits.

This template contains a [Prompt Section](#Prompts) and a [Written Analysis Section](#WrittenAnalysis). Once both sections are completed, upload the template to the Pearson ePortfolio System.

For more information about the MTEL-Flex Assessment, preparing your materials for submission, and scoring of your submission, refer to the MTEL-Flex Assessment Handbook.

Prompt Section

Respond to the prompts below (**no more than 1 page, including prompts**) by typing your responses in Arial 11-point, single-spaced font, within the brackets following each prompt. Do not delete or alter the prompts. Only the first page will be evaluated. The previous page of instructions and the written analysis that follows does not count toward your page limit. Your submission cannot contain hyperlinks to any materials.

1. Indicate the numbers of the descriptive statements for the test objective that you will address in your written submission.

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2. Indicate one or more of the below Critical Areas for instructional time found in the Massachusetts Mathematics Curriculum Framework – 2017 to develop your topic and address the selected descriptive statements:

* Grade 2 Critical Area #2 (p. 33)
* Grade 3 Critical Area #1 (p. 37)
* Grade 4 Critical Areas #1 and #2 (p. 42)
* Grade 5 Critical Areas #1 and #2 (p. 48)
* Grade 6 Critical Areas #1 and #2 (p. 54)
* Grade 7 Critical Area #1 (p. 61)

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3. Describe the topic addressed.

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4. List sources used to prepare submission.

[ ]

Written Analysis Section

Type your analysis (**no more than 3 pages, including the prompt**) in Arial 11-point, single-spaced font, within the brackets following the prompt. If appropriate, you may include tables, charts, graphs, or other diagrams that you have prepared by inserting them into your analysis. However, the total length of your analysis, including any graphic elements, may not exceed 3 pages. The previous pages of instructions and prompts do not count toward your page limit. Your submission cannot contain hyperlinks to any materials.

Prepare an organized, developed analysis on a topic related to Objective 0019.

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