



Reporting Measure: Numerical Expressions

Level	Description
Above & Beyond (4.0)	The student will: Develop a strategy to determine whether two expressions are equivalent (for example, when given the phrase “half of the quotient of sixty-four and eight,” and the numerical expressions $(64 \div 8) \div \frac{1}{2}$, $[(40 + 24) \div 8] \div 2$, $(40 \div 8 + 24 \div 8) \div 2$, $[64 \div (4 + 4)] \div 2$, and $(64 \div 4 + 64 \div 4) \div 2$, determine which expressions evaluate to the same value described by the phrase and explain why they do or do not using the order and properties of operations).
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Proficient (3.0)	The student will: NE1—Evaluate numerical expressions (for example, when given the numerical expressions $2 + 40 \div 4 + 4 \times 5$, $2 + 40 \div (4 + 4) \times 5$, and $[2 + 40 \div (4 + 4)] \times 5$, describe the steps necessary to evaluate each expression; evaluate the expressions, writing out the new form of the expression for each step; and explain why the expressions have different evaluations). NE2—Write numerical expressions to represent verbal descriptions and word problems (for example, when given that a girl started the day with seven dollars, worked as a babysitter for five hours and earned nine dollars an hour, then went to the bookstore and bought two books that would normally cost eight dollars but were on sale for half price, and finally spent ten dollars to see a movie at the theater, write a numerical expression to represent the amount of money she had at the end of the day).
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
Getting There (2.0)	NE1—The student will recognize or recall specific vocabulary (for example, <i>brackets</i>) and perform basic processes such as: - State the order of operations (parentheses, exponents, multiplication/division, addition/subtraction). - Describe the properties of operations (associative, commutative, and distributive). - Explain that the associative and commutative properties do not apply to division and that the distributive property works only when distributing over the dividend. - Rewrite simple numerical expressions in equivalent forms using the order and properties of operations. For example, rewrite $8 \times 20 \div 4$ as $20 \times 8 \div 4$ or rewrite $7 + 9 \times 6 - 3$ as $6 \times 9 + 7 - 3$. - Explain that expressions inside parentheses can themselves contain parentheses and that brackets are substituted for the outer pair of parentheses in such cases. NE2—The student will recognize or recall specific vocabulary (for example, <i>numerical expression</i>) and perform basic processes such as: - Identify numerical relationships from verbal descriptions and word problems. For example, when given that a girl ran 1 mile in 10 minutes and that her friend took three times as long to run twice as far, explain that her friend ran 2 miles in 30 minutes. - Rewrite verbal descriptions of numerical operations as numerical expressions using arithmetic symbols. For example, when given the verbal description “fifty minus twice the sum of twelve and six,” rewrite the expression as $50 - 2 \times (12 + 6)$.

1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
Beginning (1.0)	With help, partial success at score 2.0 content and score 3.0 content