

<p>Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p>	
<p>Content Domain: The Number System</p>	
<p>Target C [a]: Compute fluently with multi-digit numbers and find common factors and multiples. (DOK Levels 1, 2)</p> <p>Tasks for this target will ask students to divide multi-digit numbers and add, subtract, multiply, and divide multi-digit decimals. Other tasks will ask students to find the greatest common factor of two whole numbers less than or equal to 100; find the least common multiple of two whole numbers less than or equal to 12; and express the sum of two whole numbers 1–100 with a common factor as a multiple of the sum of two whole numbers with no common factor, or find the missing value in an equation representing such equivalence (see connections to 6.EE Targets E and F to generate items with greater range of difficulty).</p>	
<p>Standards: 6.NS.B, 6.NS.B.2, 6.NS.B.3, 6.NS.B.4</p>	<p>6.NS.B Compute fluently with multi-digit numbers and find common factors and multiples. 6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm. 6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i></p>
<p>Related Below-Grade and Above-Grade Standards for Purposes of Planning for Vertical Scaling: 5.NBT.B, 5.NBT.B.6, 5.NBT.B.7 7.NS.A, 7.NS.A.2</p>	<p>Related Grade 5 Standards 5.NBT.B Perform operations with multi-digit whole numbers and with decimals to the hundredths. 5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.</p> <p>Related Grade 7 Standards 7.NS.A Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. 7.NS.A.2 Apply and extend previous understandings of multiplication and division of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring the operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.</p>

	<p>b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.</p> <p>c. Apply properties of operations as strategies to multiply and divide rational numbers.</p> <p>d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.</p>
DOK Levels:	1, 2
Achievement Level Descriptors:	
<p>RANGE Achievement Level Descriptor (Range ALD)</p> <p>Target C: Compute fluently with multi-digit numbers and find common factors and multiples.</p>	<p>Level 1 Students should be able to add, subtract, and multiply multi-digit whole numbers and decimals to hundredths. They should be able to use the distributive property to express the sum of two whole numbers with a common factor.</p>
	<p>Level 2 Students should be able to divide multi-digit whole numbers and add and subtract multi-digit decimal numbers. They should be able to find common factors of two numbers less than or equal to 100 and multiples of two numbers less than or equal to 12.</p>
	<p>Level 3 Students should be able to fluently divide multi-digit numbers and add, subtract, multiply, and divide multi-digit decimal numbers. They should be able to find the greatest common factor of two numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.</p>
	<p>Level 4 Students should be able to make generalizations regarding multiples and factors of sets of numbers (e.g., state that a particular set of numbers is relatively prime).</p>
Evidence Required:	<ol style="list-style-type: none"> 1. The student divides multi-digit numbers. 2. The student adds, subtracts, multiplies, and divides multi-digit decimals. 3. The student determines the greatest common factor of two whole numbers. 4. The student determines the least common multiple of two whole numbers. 5. The student uses the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor.
Allowable Response Type:	Equation/Numeric
Allowable Stimulus Materials:	None
Construct-Relevant Vocabulary:	sum, difference, product, quotient, common factor, greatest common factor, common multiple, least common multiple, distributive property
Allowable Tools:	None
Target-Specific Attributes:	<p>A multi-digit dividend should have at least 4 digits.</p> <p>A multi-digit divisor should have at least 2 digits.</p> <p>A multi-digit decimal can be to the thousandths.</p> <p>The greatest common factor must be of two whole numbers less than or equal to 100.</p>

	<p>The least common multiple must be of two whole numbers less than or equal to 12.</p> <p>When using the distributive property to express a sum of two whole numbers, the whole numbers must be 1–100.</p>
Non-Targeted Constructs:	
Accessibility Guidance:	<p>Item writers should consider the following Language and Visual Element/Design guidelines¹ when developing items.</p> <p>Language Key Considerations:</p> <ul style="list-style-type: none"> • Use simple, clear, and easy-to-understand language needed to assess the construct or aid in the understanding of the context • Avoid sentences with multiple clauses • Use vocabulary that is at or below grade level • Avoid ambiguous or obscure words, idioms, jargon, unusual names and references <p>Visual Elements/Design Key Considerations:</p> <ul style="list-style-type: none"> • Include visual elements only if the graphic is needed to assess the construct or it aids in the understanding of the context • Use the simplest graphic possible with the greatest degree of contrast, and include clear, concise labels where necessary • Avoid crowding of details and graphics <p>Items are selected for a student’s test according to the blueprint, which selects items based on Claims and targets, not task models. As such, careful consideration is given to making sure fully accessible items are available to cover the content of every Claim and target, even if some item formats are not fully accessible using current technology.²</p>

¹ For more information, refer to the General Accessibility Guidelines at:

<http://www.smarterbalanced.org/wordpress/wp-content/uploads/2012/05/TaskItemSpecifications/Guidelines/AccessibilityandAccommodations/GeneralAccessibilityGuidelines.pdf>

² For more information about student accessibility resources and policies, refer to

http://www.smarterbalanced.org/wordpress/wp-content/uploads/2014/08/SmarterBalanced_Guidelines.pdf

<p>Task Model 1</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.</p> <p>Evidence Required: 1. The student divides multi-digit numbers.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to find the quotient of multi-digit numbers with or without a remainder.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • The expression should be in the form $x \div y$, where x is a 4–6-digit positive integer and y is a 2–5-digit positive integer. Exception: do not have x as a 4-digit number and y as a 2-digit number without a remainder. • Generally answers with remainders should terminate no greater than the hundredths place. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Students find quotient with no remainder (4-digit divided by 3-digit). ○ Students find quotient with no remainder (5- or 6-digit divided by 2- or 3-digit). ○ Students find quotient with a remainder (4- or 5-digit divided by 2- or 3-digit). ○ Students find quotient with a remainder or students interpret a division algorithm (4-digit divided by 4-digit; 6-digit divided by 2- or 3-digit). ○ Students find quotient with a remainder (5-digit divided by 4- or 5-digit; 6-digit divided by 4-, 5-, or 6-digit). <p>TM1</p> <p>Stimulus: The student is presented with a division expression.</p> <p>Example Stem 1: Divide.</p> $16,536 \div 24$ <p>Enter the exact quotient.</p> <p>Example Stem 2: Divide.</p> $35,702 \div 25$ <p>Enter the exact quotient.</p> <p>Rubric: (1 point) Student enters the correct quotient (e.g., 689; 1428.08).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 2</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p> <p>Evidence Required: 2. The student adds, subtracts, multiplies, and divides multi-digit decimals.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to find the sum, difference, product, or quotient of multi-digit numbers with or without a remainder using the standard algorithm.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Given numbers and answers should be positive. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Students add two multi-digit decimals; at least one decimal in thousandths. ○ Students add two multi-digit decimals, at least one decimal in ten-thousandths OR add three multi-digit decimals, at least one decimal in thousandths or ten-thousandths. ○ Students subtract two multi-digit decimals, at least one decimal in thousandths or ten thousandths. ○ Students multiply two multi-digit decimals, at least one decimal in thousandths. ○ Students find quotient of multi-digit decimals, at least one decimal to thousandths OR product of two multi-digit decimals, at least one decimal in ten-thousandths. <p>TM2a Stimulus: The student is presented with an addition expression with two or three terms.</p> <p>Example Stem: Add.</p> <p>$34.381 + 8.2$</p> <p>Enter the exact sum.</p> <p>Rubric: (1 point) Student enters the correct sum (e.g., 42.581).</p> <p>Response Type: Equation/Numeric</p> <p>TM2b Stimulus: The student is presented with a subtraction expression with two terms.</p> <p>Example Stem: Subtract.</p> <p>$48.235 - 29.67$</p> <p>Enter the exact difference.</p> <p>Rubric: (1 point) Student enters the correct difference (e.g., 18.565).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 2</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p> <p>Evidence Required: 2. The student adds, subtracts, multiplies, and divides multi-digit decimals.</p> <p>Tools: None</p>	<p>TM2c Stimulus: The student is presented with a multiplication expression with two decimals.</p> <p>Example Stem: Multiply.</p> <p>$8.296 \bullet 0.8$</p> <p>Enter the exact product.</p> <p>Rubric: (1 point) Student enters the correct product (e.g., 6.6368).</p> <p>Response Type: Equation/Numeric</p> <p>TM2d Stimulus: The student is presented with a division expression with two decimals.</p> <ul style="list-style-type: none"> The divisor place value should be to the tenths or hundredths and the dividend place value should be at the thousandths or the ten-thousandths. Answers should be a positive answer that terminates no greater than the thousandths place. <p>Example Stem: Divide.</p> <p>$0.912 \div 0.24$</p> <p>Enter the exact quotient.</p> <p>Rubric: (1 point) Student enters the correct quotient (e.g., 3.8).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 2</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 2</p> <p>6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p> <p>Evidence Required: 2. The student adds, subtracts, multiplies, and divides multi-digit decimals.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to reason and interpret about addition, subtraction, multiplication, or division problems.</p> <p>Stimulus Guidelines: Given numbers and answers should be positive and item difficulty can be adjusted by changing whether the given equation is addition, subtraction, multiplication, or division.</p> <p>TM2e</p> <p>Stimulus: The student is presented with an addition/subtraction/multiplication/division equation.</p> <p>Example Stem: Use the fact that $12 \bullet 218 = 2616$.</p> <p>Enter the exact product of $1.2 \bullet 2.18$.</p> <p>Rubric: (1 point) Student enters the correct product (e.g., 2.616).</p> <p>Note: Students should be able to determine the product without calculating it, but instead by using the given computation and reasoning skills.</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 3</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i></p> <p>Evidence Required: 3. The student determines the greatest common factor of two whole numbers.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to find the greatest common factor of two whole numbers.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Greatest common factor should be greater than 1. • Whole numbers should be less than or equal to 100. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Students find GCF of two whole numbers (both numbers are even; GCF less than 10). ○ Students find GCF of two whole numbers (GCF between 10 and 20). ○ Students find GCF of two whole numbers (one of the numbers is a multiple of 5, the other is a multiple of 10). ○ Students find GCF of two whole numbers (one of the numbers is a prime number greater than 20 and is a factor of the other number). <p>TM3</p> <p>Stimulus: The student is presented with two whole numbers less than 100.</p> <p>Example Stem: Enter the greatest common factor of 24 and 36.</p> <p>Rubric: (1 point) Student enters the correct greatest common factor (e.g., 12).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 4</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i></p> <p>Evidence Required: 4. The student determines the least common multiple of two whole numbers.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to find the least common multiple of two whole numbers.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Whole numbers should be less than or equal to 12. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Students find LCM of two whole numbers (one of the numbers is 2). ○ Students find LCM of two whole numbers (one of the numbers is 5; both numbers lower than 6; LCM is less than 30). ○ Students find LCM of two whole numbers (one of the numbers is less than 6, the other number is greater than 6; LCM is less than 40). ○ Students find LCM of two whole numbers (LCM is greater than 40). <p>TM4</p> <p>Stimulus: The student is presented with two whole numbers less than 12.</p> <p>Example Stem: Enter the least common multiple of 6 and 8.</p> <p>Rubric: (1 point) Student enters the correct least common multiple (e.g., 24).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 5</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 2</p> <p>6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i></p> <p>Evidence Required: 5. The student uses the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to identify equivalent expressions using the distributive property.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • The expression should be in the form $x + y = a(b + c)$ or $a(b + c) = x + y$ where x, y, a, b, and c are whole numbers between 1 and 100. • x and y should have a common factor greater than 1. • The missing number may be any of the variables x, y, a, b, and c. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Use only even numbers less than 20. ○ Use only numbers less than 70. ○ Use at least two numbers greater than 70. <p>TM5</p> <p>Stimulus: The student is presented with an equation showing the distributive property with a missing number.</p> <p>Example Stem: Consider the equation.</p> $24 + 30 = 6(4 + \square)$ <p>Enter the unknown number that makes the equation true.</p> <p>Rubric: (1 point) Student enters the correct value (e.g., 5).</p> <p>Response Type: Equation/Numeric</p>
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