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# Grade 6 Math Practice Test

## Content Summary and Answer Key

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<th>Item Type</th>
<th>Content Cluster</th>
<th>Content Standard</th>
<th>Answer Key</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Equation Item</td>
<td>Reason about and solve one-variable equations and inequalities.</td>
<td>Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (6.EE.6)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>2</td>
<td>Graphic Response</td>
<td>Solve real-world and mathematical problems involving area, surface area, and volume.</td>
<td>Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. (6.G.3)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>3</td>
<td>Multiple Choice</td>
<td>Apply and extend previous understandings of numbers to the system of rational numbers.</td>
<td>Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. (6.NS.6c)</td>
<td>A</td>
<td>1 point</td>
</tr>
<tr>
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<tr>
<td>4</td>
<td>Multi-Select Item</td>
<td>Understand ratio concepts and use ratio reasoning to solve problems.</td>
<td>Understand the concept of a unit rate ( \frac{a}{b} ) associated with a ratio ( a:b ) with ( b \neq 0 ), and use rate language in the context of a ratio relationship. For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is ( \frac{3}{4} ) cup of flour for each cup of sugar.” “We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger.”. (6.RP.2)</td>
<td>A, D, E</td>
<td>1 point</td>
</tr>
<tr>
<td>5</td>
<td>Equation Item</td>
<td>Apply and extend previous understandings of numbers to the system of rational numbers.</td>
<td>Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (6.NS.8)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>6</td>
<td>Graphic Response</td>
<td>Apply and extend previous understandings of numbers to the system of rational numbers.</td>
<td>Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. (6.NS.6c)</td>
<td>---</td>
<td>1 point</td>
</tr>
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<tr>
<td>7</td>
<td>Multi-Select Item</td>
<td>Apply and extend previous understandings of arithmetic to algebraic expressions.</td>
<td>Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions ( y + y + y ) and ( 3y ) are equivalent because they name the same number regardless of which number ( y ) stands for. (6.EE.4)</td>
<td>B, C, E</td>
<td>1 point</td>
</tr>
<tr>
<td>8</td>
<td>Graphic Response</td>
<td>Understand ratio concepts and use ratio reasoning to solve problems.</td>
<td>Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.” (6.RP.1)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>9</td>
<td>Equation Item</td>
<td>Reason about and solve one-variable equations and inequalities.</td>
<td>Write an inequality of the form ( x &gt; c ) or ( x &lt; c ) to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form ( x &gt; c ) or ( x &lt; c ) have infinitely many solutions; represent solutions of such inequalities on number line diagrams. (6.EE.8)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>10</td>
<td>Matching Item</td>
<td>Compute fluently with multi-digit numbers and find common factors and multiples.</td>
<td>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. For example, express ( 36 + 8 ) as ( 4(9 + 2) ). (6.NS.4)</td>
<td>---</td>
<td>1 point</td>
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<tr>
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<tr>
<td>11</td>
<td>Equation Item</td>
<td>Solve real-world and mathematical problems involving area, surface area, and volume.</td>
<td>Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. (6.G.4)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>12</td>
<td>Equation Item</td>
<td>Apply and extend previous understandings of arithmetic to algebraic expressions.</td>
<td>Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$. (6.EE.3)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>13</td>
<td>Table Item</td>
<td>Understand ratio concepts and use ratio reasoning to solve problems.</td>
<td>Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements; find missing values in the tables; and plot the pairs of values on the coordinate plane. Use tables to compare ratios. (6.RP.3a)</td>
<td>---</td>
<td>1 point</td>
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</tbody>
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## Grade 6 Math Practice Test
### Content Summary and Answer Key

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<tr>
<td>14</td>
<td>Equation Item</td>
<td>Reason about and solve one-variable equations and inequalities.</td>
<td>Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which $p$, $q$, and $x$ are all nonnegative rational numbers. (6.EE.7)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>15</td>
<td>Equation Item</td>
<td>Understand ratio concepts and use ratio reasoning to solve problems.</td>
<td>Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. (6.RP.3d)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>16</td>
<td>Multiple Choice</td>
<td>Develop understanding of statistical problem solving.</td>
<td>Develop statistical reasoning by using the GAISE model. (6.SP.1)</td>
<td>A</td>
<td>1 point</td>
</tr>
<tr>
<td>17</td>
<td>Equation Item</td>
<td>Apply and extend previous understandings of numbers to the system of rational numbers.</td>
<td>Understand ordering and absolute value of rational numbers. b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write $-3 \degree C &gt; -7 \degree C$ to express the fact that $-3 \degree C$ is warmer than $-7 \degree C$. (6.NS.7b)</td>
<td>---</td>
<td>1 point</td>
</tr>
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</table>
| 18          | Equation Item | Understand ratio concepts and use ratio reasoning to solve problems. | Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.  
  b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? (6.RP.3b) | ---         | 1 point |
| 19          | Multiple Choice | Apply and extend previous understandings of arithmetic to algebraic expressions. | Write, read, and evaluate expressions in which letters stand for numbers.  
  a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as 5 - y. (6.EE.2a) | C           | 1 point |
| 20          | Equation Item | Summarize and describe distributions. | Summarize numerical data sets in relation to their context.  
  c. Find the quantitative measures of center (median and/or mean) for a numerical data set and recognize that this value summarizes the data set with a single number. Interpret mean as an equal or fair share. Find measures of variability (range and interquartile range) as well as informally describe the shape and the presence of clusters, gaps, peaks, and outliers in a distribution. (6.SP.5c) | ---         | 1 point |
<table>
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</table>
| 21         | Equation Item  | Understand ratio concepts and use ratio reasoning to solve problems.            | Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.  
  c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $\frac{30}{100}$ times the quantity); solve problems involving finding the whole, given a part and the percent. (6.RP.3c) | ---         | 1 point|
| 22         | Matching Item  | Apply and extend previous understandings of arithmetic to algebraic expressions. | Write, read, and evaluate expressions in which letters stand for numbers.  
  b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms. (6.EE.2b) | ---         | 1 point|
| 23         | Graphic Response | Apply and extend previous understandings of numbers to the system of rational numbers. | Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.  
  b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. (6.NS.6b) | ---         | 1 point|
<table>
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<tr>
<td>24</td>
<td>Equation Item</td>
<td>Represent and analyze quantitative relationships between dependent and independent variables.</td>
<td>Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation ( d = 65t ) to represent the relationship between distance and time. (6.EE.9)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
<td>25</td>
<td>Equation Item</td>
<td>Understand ratio concepts and use ratio reasoning to solve problems.</td>
<td>Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. (6.RP.3d)</td>
<td>---</td>
<td>1 point</td>
</tr>
<tr>
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</tr>
<tr>
<td>26</td>
<td>Gap Match Item</td>
<td>Apply and extend previous understandings of numbers to the system of rational numbers.</td>
<td>Understand and absolute value of rational numbers. c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of −30 dollars, write</td>
<td>−30</td>
<td>= 30 to describe the size of the debt in dollars. (6.NS.7c)</td>
</tr>
<tr>
<td>27</td>
<td>Inline Choice Item</td>
<td>Understand ratio concepts and use ratio reasoning to solve problems.</td>
<td>Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.” (6.RP.1)</td>
<td>---</td>
<td>1 point</td>
</tr>
</tbody>
</table>
Grade 6
Math
Practice Test

Question 1

Question and Scoring Guidelines
Question 1

Carla has 10 fewer books than Dominic. Create an expression to represent the number of books Carla has, where $x$ is the number of books Dominic has.

Points Possible: 1

**Content Cluster:** Reason about and solve one-variable equations and inequalities.

**Content Standard:** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (6.EE.6)

**Scoring Guidelines**

**Exemplar Response**
- $x - 10$

**Other Correct Responses**
- Any equivalent expression

For this item, a full-credit response includes:
- A correct expression (1 point).
Sample Response: 1 point

Carla has 10 fewer books than Dominic.

Create an expression to represent the number of books Carla has, where \( x \) is the number of books Dominic has.

\[ x - 10 \]

Notes on Scoring

This response earns full credit (1 point) because the student correctly created an expression that represents the situation. Dominic has \( x \) number of books and Carla has ten fewer number of books: \( x - 10 \).
Sample Response: 1 point

Carla has 10 fewer books than Dominic.
Create an expression to represent the number of books Carla has, where \( x \) is the number of books Dominic has.

\[-10 + x\]

Notes on Scoring
This response earns full credit (1 point) because the student correctly created an expression that represents the situation. Carla has ten fewer books than Dominic and Dominic has \( x \) number of books: \(-10 + x\).
Sample Response: 0 points

Carla has 10 fewer books than Dominic.
Create an expression to represent the number of books Carla has, where $x$ is the number of books Dominic has.

$10 - x$

Notes on Scoring

This response earns no credit (0 points) because the student created an expression that does not represent the given situation. This response represents a situation where Dominic has $x$ books and Carla has $x$ fewer than 10 books. If Dominic has $x$ books, then Carla should have 10 fewer books than that: $(x - 10)$. 
### Sample Response: 0 points

Carla has 10 fewer books than Dominic.
Create an expression to represent the number of books Carla has, where $x$ is the number of books Dominic has.

$$10 + x$$

**Notes on Scoring**

This response earns no credit (0 points) because the student created an expression that represents that Carla has 10 more books than Dominic by adding the two numbers together.
Grade 6
Math
Practice Test

Question 2

Question and Scoring Guidelines
Fatima draws a quadrilateral in the coordinate plane with the conditions shown.

- The quadrilateral has exactly one pair of parallel sides.
- Two of the vertices are (-4, 5) and (2, -3).
- At least one side has a length of 5 units.

Use the Connect Line tool to create a quadrilateral that Fatima could draw.

**Points Possible:** 1

**Content Cluster:** Solve real-world and mathematical problems involving area, surface area, and volume.

**Content Standard:** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. (6.G.3)
Scoring Guidelines

Exemplar Response

Other Correct Responses

- Any quadrilateral with vertices at (-4, 5) and (2, -3), at least one side length of 5 units, and exactly one pair of parallel sides

For this item, a full-credit response includes:

- A correct quadrilateral (1 point).
Grade 6
Math
Practice Test

Question 2

Sample Responses
Sample Response: 1 point

Fatima draws a quadrilateral in the coordinate plane with the conditions shown.

- The quadrilateral has exactly one pair of parallel sides.
- Two of the vertices are (-4, 5) and (2, -3).
- At least one side has a length of 5 units.

Use the Connect Line tool to create a quadrilateral that Fatima could draw.

Notes on Scoring

This response earns full credit (1 point) because the student has fulfilled all three conditions.

- There is one pair of parallel sides: the two horizontal sides.
- The two predetermined vertices, (-4, 5) and (2, -3), are used.
- The top horizontal line is 5 units in length.
Sample Response: 1 point

Fatima draws a quadrilateral in the coordinate plane with the conditions shown.

- The quadrilateral has exactly one pair of parallel sides.
- Two of the vertices are \((-4, 5)\) and \((2, -3)\).
- At least one side has a length of 5 units.

Use the Connect Line tool to create a quadrilateral that Fatima could draw.

Notes on Scoring

This response earns full credit (1 point) because the student has fulfilled all three conditions.

- There is one pair of parallel sides: the line segment from \((-4, 5)\) to \((0, 2)\) is parallel to the line segment from \((-6, 3)\) to \((2, -3)\).
- The two predetermined vertices, \((-4, 5)\) and \((2, -3)\), are used.
- The line segment \((-4, 5)\) to \((0, 2)\) is 5 units in length, since 
  \[ (-4 - 0)^2 + (5 - 2)^2 = c^2 \]
  \[ 16 + 9 = c^2 \]
  \[ 25 = c^2 \]
  \[ 5 = c, \text{ using the Pythagorean Theorem.} \]
Sample Response: 0 points

Fatima draws a quadrilateral in the coordinate plane with the conditions shown.

- The quadrilateral has exactly one pair of parallel sides.
- Two of the vertices are (-4, 5) and (2, -3).
- At least one side has a length of 5 units.

Use the Connect Line tool to create a quadrilateral that Fatima could draw.

Notes on Scoring

This response earns no credit (0 points) because the student only fulfilled two of the conditions.

- The two predetermined vertices, (-4, 5) and (2, -3), are used.
- Both the side from (-4, 5) to (1, 5) and the side from (-3, -3) to (2, -3) have a length of 5 units.

The student did not fulfill the third condition.
- In this response, there are two pairs of parallel sides instead of exactly one pair.
Sample Response: 0 points

Fatima draws a quadrilateral in the coordinate plane with the conditions shown.

- The quadrilateral has exactly one pair of parallel sides.
- Two of the vertices are \((-4, 5)\) and \((2, -3)\).
- At least one side has a length of 5 units.

Use the Connect Line tool to create a quadrilateral that Fatima could draw.

Notes on Scoring

This response earns no credit (0 points) because the student only fulfilled two of the conditions.

- There is one pair of parallel sides. The line segment from \((-4, 5)\) to \((4, -3)\) is parallel to the line segment from \((-4, 3)\) to \((2, -3)\).
- The two predetermined vertices, \((-4, 5)\) and \((2, -3)\), are used.

The student did not fulfill the third condition.

- In this response, there is no side with the length of 5 units.
Grade 6
Math
Practice Test

Question 3

Question and Scoring Guidelines
Question 3

Which number is the farthest from –2 on the number line?

A  6
B  0
C  −1
D  −9

**Points Possible:** 1

**Content Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers.

**Content Standard:** Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

(6.NS.6c)
Scoring Guidelines

Rationale for Option A: **Key** - The student identifies a distance of 8 as the largest distance.

Rationale for Option B: This is incorrect. The student may think that all negative numbers are farthest from 0.

Rationale for Option C: This is incorrect. The student may think that the question is asking for the closest number on the number line.

Rationale for Option D: This is incorrect. The student may think that since -9 has the greatest absolute value, it must be the farthest from -2.

Sample Response: 1 point

Which number is the farthest from -2 on the number line?

- [ ] 6
- [X] 0
- [ ] -1
- [ ] -9
Grade 6
Math
Practice Test

Question 4

Question and Scoring Guidelines
Question 4

Select the **three** statements that represent a unit rate.

- [ ] Carrots cost $2 per pound.
- [ ] Sylvia buys 5 shirts for $75.
- [ ] It takes Juan 3 hours to drive 165 miles.
- [ ] A recipe calls for 2 cups of sugar for every gallon of water.
- [ ] A teacher divides her students so that there are 11 students per group.

**Points Possible: 1**

**Content Cluster:** Understand ratio concepts and use ratio reasoning to solve problems.

**Content Standard:** Understand the concept of a unit rate \( \frac{a}{b} \) associated with a ratio \( a:b \) with \( b \neq 0 \), and use rate language in the context of a ratio relationship. For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is \( \frac{3}{4} \) cup of flour for each cup of sugar.” “We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger.”). (6.RP.2)
**Scoring Guidelines**

**Rationale for First Option:** **Key** - The student correctly identified a statement that represents a unit rate.

**Rationale for Second Option:** This is incorrect. The student may have mistaken a unit rate for a ratio that could be represented by a whole number unit rate.

**Rationale for Third Option:** This is incorrect. The student may have mistaken a unit rate for a ratio that could be represented by a whole number unit rate.

**Rationale for Fourth Option:** **Key** - The student correctly identified a statement that represents a unit rate.

**Rationale for Fifth Option:** **Key** - The student correctly identified a statement that represents a unit rate.
Grade 6
Math
Practice Test

Question 4

Sample Responses
Sample Response: 1 point

Select the **three** statements that represent a unit rate.

- [x] Carrots cost $2 per pound.
- [ ] Sylvia buys 5 shirts for $75.
- [ ] It takes Juan 3 hours to drive 165 miles.
- [x] A recipe calls for 2 cups of sugar for every gallon of water.
- [x] A teacher divides her students so that there are 11 students per group.

**Notes on Scoring**

This response earns full credit (1 point) because the student identified the three correct statements.
Sample Response: 0 points

Select the three statements that represent a unit rate.

- Carrots cost $2 per pound.
- Sylvia buys 5 shirts for $75.
- It takes Juan 3 hours to drive 165 miles.
- A recipe calls for 2 cups of sugar for every gallon of water.
- A teacher divides her students so that there are 11 students per group.

Notes on Scoring

This response earns no credit (0 points) because the student only marked two of the correct responses. All three correct responses are required to be selected for full credit.
Grade 6
Math
Practice Test

Question 5

Question and Scoring Guidelines
Question 5

What is the distance between \((-2, 4)\) and \((5, 4)\) on a coordinate grid?

Points Possible: 1

Content Cluster: Apply and extend previous understandings of numbers to the system of rational numbers.

Content Standard: Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (6.NS.8)
**Scoring Guidelines**

**Exemplar Response**
- 7

**Other Correct Responses**
- Any equivalent value

For this item, a full-credit response includes:
- The correct distance (1 point).
Grade 6
Math
Practice Test

Question 5

Sample Responses
Sample Response: 1 point

What is the distance between $(-2, 4)$ and $(5, 4)$ on a coordinate grid?

7

Notes on Scoring

This response earns full credit (1 point) because the student correctly determined that the distance between two points with the same second coordinate is found by subtracting the first coordinates: $5 - (-2) = 7$. 
Sample Response: 1 point

What is the distance between \((-2, 4)\) and \((5, 4)\) on a coordinate grid?

7.0

Notes on Scoring

This response earns full credit (1 point) because the student correctly determined that the distance between two points with the same second coordinate is found by subtracting the first coordinates: \(5 - (-2) = 7.0\).
Sample Response: 0 points

What is the distance between (−2, 4) and (5, 4) on a coordinate grid?

−7

Notes on Scoring

This response earns no credit (0 points) because the student did not determine the correct distance between two points with the same second coordinate. The student may have calculated (−2) − 5 = −7 to get this answer.
Sample Response: 0 points

What is the distance between \((-2, 4)\) and \((5, 4)\) on a coordinate grid?

6

Notes on Scoring

This response earns no credit (0 points) because the student did not determine the correct distance between two points with the same second coordinate. The student may have calculated \(4 - (-2) = 6\).
Grade 6
Math
Practice Test

Question 6

Question and Scoring Guidelines
Question 6

Six numbers are shown.

1.25, -1.5, -0.75, $\frac{3}{4}$, $2\frac{6}{8}$, $\frac{5}{4}$

Place each number in its correct location on the number line.

Points Possible: 1

Content Cluster: Apply and extend previous understandings of numbers to the system of rational numbers.

Content Standard: Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. (6.NS.6c)
Scoring Guidelines

Exemplar Response

Other Correct Responses
• N/A

For this item, a full-credit response includes:
• Six correct placements (1 point).
Grade 6
Math
Practice Test

Question 6

Sample Responses
Sample Response: 1 point

Six numbers are shown.
1.25, -1.5, -0.75, $\frac{3}{4}$, $2\frac{6}{8}$, $\frac{5}{4}$

Place each number in its correct location on the number line.

Notes on Scoring

This response earns full credit (1 point) because the student determined the correct locations on the number line of all six points.
Sample Response: 1 point

Six numbers are shown.
1.25, -1.5, -0.75, $\frac{3}{4}$, $2\frac{6}{8}$, $\frac{5}{4}$

Place each number in its correct location on the number line.

Notes on Scoring

This response earns full credit (1 point) because the student determined the correct locations on the number line of all six points. Although the numbers are placed so that the arrows point away from the number line, the numbers are still in the correct locations.
Sample Response: 0 points

Six numbers are shown.
1.25, −1.5, −0.75, −\(\frac{3}{4}\), 2\(\frac{6}{8}\), \(\frac{5}{4}\)

Place each number in its correct location on the number line.

Notes on Scoring

This response earns no credit (0 points) because the student did not determine the correct locations on the number line of all six points. The points −\(\frac{3}{4}\) and 2\(\frac{6}{8}\) are both in incorrect locations.
Sample Response: 0 points

Six numbers are shown.
1.25, −1.5, −0.75, −\frac{3}{4}, 2\frac{6}{8}, \frac{5}{4}

Place each number in its correct location on the number line.

Notes on Scoring

This response earns no credit (0 points) because the student did not determine the correct locations on the number line of all six points. The points −1.5 and 2\frac{6}{8} are both in incorrect locations.
Grade 6
Math
Practice Test

Question 7

Question and Scoring Guidelines
Question 7

Select the **three** expressions that are equivalent to \(8h + 4g\).

- \(2h + g\)
- \(4(2h + g)\)
- \(4h + 4h + 3g + g\)
- \(\frac{1}{4}(2h + g)\)
- \(2(4h + 2g)\)
- \(\frac{1}{8}(8h + 4g)\)

**Points Possible:** 1

**Content Cluster:** Apply and extend previous understandings of arithmetic to algebraic expressions.

**Content Standard:** Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). For example, the expressions \(y + y + y\) and \(3y\) are equivalent because they name the same number regardless of which number \(y\) stands for. (6.EE.4)
Scoring Guidelines

Rationale for First Option: This is incorrect. The student understands that $2h + g$ is a factor but neglects the other factor needed for the two expressions to be equivalent.

Rationale for Second Option: **Key** - The student correctly understands the distributive property.

Rationale for Third Option: **Key** - The student correctly combines like terms.

Rationale for Fourth Option: This is incorrect. The student factored out $\frac{1}{4}$ instead of factoring out a 4.

Rationale for Fifth Option: **Key** - The student correctly understands the distributive property.

Rationale for Sixth Option: This is incorrect. The student may have tried to make the coefficient of $h$ equal to 1 by multiplying the expression by the reciprocal of 8.
Grade 6
Math
Practice Test

Question 7

Sample Responses
Sample Response: 1 point

Select the **three** expressions that are equivalent to $8h + 4g$.

- $2h + g$
- $4(2h + g)$ (Correct)
- $4h + 4h + 3g + g$ (Correct)
- $\frac{1}{4}(2h + g)$
- $2(4h + 2g)$ (Correct)
- $\frac{1}{8}(8h + 4g)$

**Notes on Scoring**

This response earns full credit (1 point) because the student identified the three correct expressions.
Sample Response: 0 points

Select the **three** expressions that are equivalent to $8h + 4g$.

- [ ] $2h + g$
- [x] $4(2h + g)$
- [x] $4h + 4h + 3g + g$
- [ ] $\frac{1}{4}(2h + g)$
- [ ] $2(4h + 2g)$
- [ ] $\frac{1}{8}(8h + 4g)$

**Notes on Scoring**

This response earns no credit (0 points) because the student only identified two of the three correct expressions. All three correct responses are required to be selected for full credit.
Grade 6
Math
Practice Test

Question 8

Question and Scoring Guidelines
**Question 8**

Charissa has rectangular and circular candies in a jar as shown.

Place additional candies in the jar so that the ratio of circular candies to total candies is 7:12.

---

**Points Possible:** 1

**Content Cluster:** Understand ratio concepts and use ratio reasoning to solve problems.

**Content Standard:** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes." (6.RP.1)
Scoring Guidelines

Exemplar Response

Other Correct Responses

• Any answer with \( \frac{\text{number of circular candies}}{\text{number of total candies}} = \frac{7}{12} \)

For this item, a full-credit response includes:

• A correct set of candies (1 point).
Notes on Scoring

This response earns full credit (1 point) because the student placed 1 additional circular candy in the jar to make 7 circular candies and 3 additional rectangular candies in the jar to make the total number of candies 12. Adding these candies produces the correct ratio of circular candies to total candies, 7:12.
Sample Response: 1 point

Charissa has rectangular and circular candies in a jar as shown.
Place additional candies in the jar so that the ratio of circular candies to total candies is 7:12.

Notes on Scoring

This response earns full credit (1 point) because the student placed 1 additional circular candy in the jar to make 7 circular candies and 3 additional rectangular candies in the jar to make the total number of candies 12. Adding these candies produces the correct ratio of circular candies to total candies, 7:12. The two candies placed outside the jar are not “counted” by the computerized scoring and do not interfere with the correct response.
Sample Response: 1 point

Charissa has rectangular and circular candies in a jar as shown.

Place additional candies in the jar so that the ratio of circular candies to total candies is 7:12.

Notes on Scoring

This response earns full credit (1 point) because the student placed 8 additional circular candies in the jar to make 14 circular candies and 8 additional rectangular candies in the jar to make the total number of candies 24. Adding these candies produces a ratio of circular candies to total candies of 14:24, which is equivalent to 7:12.
Charissa has rectangular and circular candies in a jar as shown.

Place additional candies in the jar so that the ratio of circular candies to total candies is 7:12.

**Notes on Scoring**

This response earns no credit (0 points) because the student placed 6 additional circular candies and 5 additional rectangular candies in the jar, incorrectly creating a ratio of rectangular candies to circular candies of 7:12, instead of a ratio of circular candies to total candies.
Grade 6
Math
Practice Test

Question 9

Question and Scoring Guidelines
Question 9

A children’s ride at an amusement park has a rule that a person must be shorter than 4 feet tall to ride it. Create an inequality that shows the height, $x$, in feet, a person must be to go on this ride.

Points Possible: 1

Content Cluster: Reason about and solve one-variable equations and inequalities.

Content Standard: Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. (6.EE.8)
**Scoring Guidelines**

**Exemplar Response**
- $x < 4$

**Other Correct Responses**
- $4 > x$

For this item, a full-credit response includes:
- A correct inequality (1 point).
Grade 6
Math
Practice Test

Question 9

Sample Responses
Sample Response: 1 point

A children’s ride at an amusement park has a rule that a person must be shorter than 4 feet tall to ride it. Create an inequality that shows the height, x, in feet, a person must be to go on this ride.

4 > x

Notes on Scoring

This response earns full credit (1 point) because the student created a correct inequality to model the situation.
Sample Response: 1 point

A children’s ride at an amusement park has a rule that a person must be shorter than 4 feet tall to ride it. Create an inequality that shows the height, $x$, in feet, a person must be to go on this ride.

$x < 4$

Notes on Scoring

This response earns full credit (1 point) because the student created a correct inequality to model the situation.
Sample Response: 0 points

A children's ride at an amusement park has a rule that a person must be shorter than 4 feet tall to ride it. Create an inequality that shows the height, \( x \), in feet, a person must be to go on this ride.

\[ x < 48 \]

Notes on Scoring

This response earns no credit (0 points) because the student created an inequality that states that the person needs to be less than 48 feet tall. The stem indicates that the response needs to show the height, \( x \), in feet. The student may have converted the 4 feet to 48 inches, but in this case the equivalent measurement cannot be accepted because the stem clearly states that the inequality must use feet as the unit of measure.
A children’s ride at an amusement park has a rule that a person must be shorter than 4 feet tall to ride it. Create an inequality that shows the height, $x$, in feet, a person must be to go on this ride.

$x > 4$

**Notes on Scoring**

This response earns no credit (0 points) because the student created an inequality that states that the height, $x$, in feet must be greater than 4 feet instead of less than 4 feet.
Grade 6
Math
Practice Test

Question 10

Question and Scoring Guidelines
Question 10

Select a box to match each expression on the left to its equivalent expression.

<table>
<thead>
<tr>
<th>30 + 24</th>
<th>30 + 27</th>
<th>42 + 12</th>
<th>42 + 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Points Possible: 1

Content Cluster: Compute fluently with multi-digit numbers and find common factors and multiples.

Content Standard: 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. For example, express 36 + 8 as 4(9 + 2). (6.NS.4)

Scoring Guidelines

For this item, a full-credit response includes:
- “30 + 27” selected for “3(10 +9)”;
  AND
- “30 + 24” selected for “6(5 + 4)”;
  AND
- “42 + 36” selected for “6(7 + 6)” (1 point).
Sample Response: 1 point

Select a box to match each expression on the left to its equivalent expression.

<table>
<thead>
<tr>
<th></th>
<th>30 + 24</th>
<th>30 + 27</th>
<th>42 + 12</th>
<th>42 + 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>3(10 + 9)</td>
<td></td>
<td>✔️</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6(5 + 4)</td>
<td>✔️</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6(7 + 6)</td>
<td></td>
<td></td>
<td></td>
<td>✔️</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly matched each expression with an equivalent expression.
Sample Response: 0 points

Select a box to match each expression on the left to its equivalent expression.

<table>
<thead>
<tr>
<th></th>
<th>30 ÷ 24</th>
<th>30 ÷ 27</th>
<th>42 ÷ 12</th>
<th>42 ÷ 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>3(10 + 9)</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6(5 + 4)</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6(7 + 6)</td>
<td>☐</td>
<td>☐</td>
<td>☑</td>
<td>☐</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student matched only two expressions to an equivalent expression. The last expression, in Row 3, is not matched correctly. For this expression, the student may have correctly distributed the 6 to the first term in the parentheses, 7, and then incorrectly added the 6 with the last term, 6, to get 42 + 12.
Sample Response: 0 points

Select a box to match each expression on the left to its equivalent expression.

<table>
<thead>
<tr>
<th></th>
<th>30 + 24</th>
<th>30 + 27</th>
<th>42 + 12</th>
<th>42 + 36</th>
</tr>
</thead>
<tbody>
<tr>
<td>3(10 + 9)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6(5 + 4)</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6(7 + 6)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student matched only one expression to an equivalent expression (the last row).

The first two expressions are not matched correctly. For the expression in Row 1, the student may have correctly distributed the 3 to the first term in the parentheses, 10, and then misread the rows and multiplied 6 by 4 in the following expression. For the expression in Row 2, the student may have correctly distributed the 6 to the first term in the parentheses, 5, and then misread the rows and multiplied 3 and 9 in the previous expression.
Grade 6
Math
Practice Test

Question 11

Question and Scoring Guidelines
Question 11

Janice makes a box in the shape of a rectangular prism. A net of the box is shown.

What is the surface area of the box?

square inches

1 2 3
4 5 6
7 8 9
0 . -
Points Possible: 1

Content Cluster: Solve real-world and mathematical problems involving area, surface area, and volume.

Content Standard: Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems. (6.G.4)
Scoring Guidelines

Exemplar Response
• 376

Other Correct Responses
• Any equivalent value

For this item, a full-credit response includes:
• The correct area (1 point).
Sample Response: 1 point

Janice makes a box in the shape of a rectangular prism. A net of the box is shown.

What is the surface area of the box?

376 square inches
Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated the surface area of the box using the net.

The top and bottom of the box are 6 inches by 10 inches, the front and back of the box are 8 inches by 10 inches, and the sides of the box are 6 inches by 8 inches. Thus, the total surface area is $2(6 \times 10) + 2(8 \times 10) + 2(6 \times 8) = 120 + 160 + 96 = 376$ square inches.
Janice makes a box in the shape of a rectangular prism. A net of the box is shown.

What is the surface area of the box?

376.0 square inches
Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated the surface area of the box using the net. Writing the answer as a decimal with no tenths is still a correct response.

The top and bottom of the box are 6 inches by 10 inches, the front and back of the box are 8 inches by 10 inches, and the sides of the box are 6 inches by 8 inches. Thus, the total surface area is \(2(6 \times 10) + 2(8 \times 10) + 2(6 \times 8) = 120 + 160 + 96 = 376.0\) square inches.
Janice makes a box in the shape of a rectangular prism. A net of the box is shown.

What is the surface area of the box?

336 square inches
Notes on Scoring

This response earns no credit (0 points) because the student did not calculate the correct surface area of the box using the net.

The student may have incorrectly thought that each of the boxes in the middle column was 6 inches by 10 inches, leading to a total surface area of $4(6 \times 10) = 240$ square inches for the middle column, and then correctly saw that the two side boxes are 6 inches by 8 inches, leading to a surface area of 48 square inches for each side. Then, the student may have correctly added these values to get the incorrect surface area of 336 square inches.
Sample Response: 0 points

Janice makes a box in the shape of a rectangular prism. A net of the box is shown.

What is the surface area of the box?

320 square inches
Notes on Scoring

This response earns no credit (0 points) because the student did not calculate the correct surface area of the box using the net.

The student may have incorrectly thought that each of the boxes in the middle column was 6 inches by 10 inches, leading to a total surface area of $4(6 \times 10) = 240$ square inches for the middle column, and then incorrectly thought that the side of the box is 8 inches by 10 inches, leading to a surface area of 80 square inches. Then, the student may have added these two values to get the incorrect surface area of 320 square inches.
Grade 6
Math
Practice Test

Question 12

Question and Scoring Guidelines
Question 12

Create an expression that is equivalent to $9(3x + 5 + x)$ without using parentheses.

Points Possible: 1

**Content Cluster:** Apply and extend previous understandings of arithmetic to algebraic expressions.

**Content Standard:** Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$. (6.EE.3)
Scoring Guidelines

Exemplar Response

- $27x + 45 + 9x$

Other Correct Responses

- Any equivalent expression without parentheses

For this item, a full-credit response includes:

- A correct expression (1 point).
Grade 6
Math
Practice Test

Question 12

Sample Responses
Sample Response: 1 point

Create an expression that is equivalent to \(9(3x + 5 + x)\) without using parentheses.

\[
27x + 45 + 9x
\]

Notes on Scoring

This response earns full credit (1 point) because the student correctly applied the distributive property to the expression.
Sample Response: 1 point

Create an expression that is equivalent to $9(3x + 5 + x)$ without using parentheses.

$36x + 45$

Notes on Scoring

This response earns full credit (1 point) because the student correctly applied the distributive property to the expression and combined like terms.
Sample Response: 0 points

Create an expression that is equivalent to \(9(3x + 5 + x)\) without using parentheses.

\[27x + 45\]

Notes on Scoring

This response earns no credit (0 points) because the student did not fully apply the distributive property to the expression. The student may have forgotten to multiply the 9 by the last term, \(x\), and is therefore missing the \(9x\).
Sample Response: 0 points

Create an expression that is equivalent to $9(3x + 5 + x)$ without using parentheses.

$\boxed{27x + 5 + x}$

Notes on Scoring

This response earns no credit (0 points) because the student did not fully apply the distributive property to the expression. The student only multiplied the 9 by the first term in the parentheses and left the last two terms the same.
Grade 6
Math
Practice Test

Question 13

Question and Scoring Guidelines
Question 13

Gabby makes banana bread at her bakery every Monday and Wednesday. Her banana bread recipe calls for the ratios of ingredients shown.

- 5 cups of sugar for every 50 tablespoons of butter
- 80 tablespoons of butter for every 32 bananas

Complete the table to show the ratio of ingredients Gabby used to make her banana bread.

<table>
<thead>
<tr>
<th></th>
<th>Cups of Sugar</th>
<th>Tablespoons of Butter</th>
<th>Number of Bananas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wednesday</td>
<td></td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

**Points Possible:** 1

**Content Cluster:** Understand ratio concepts and use ratio reasoning to solve problems.

**Content Standard:** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. (6.RP.3a)
Scoring Guidelines

Exemplar Response

<table>
<thead>
<tr>
<th></th>
<th>Cups of Sugar</th>
<th>Tablespoons of Butter</th>
<th>Number of Bananas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>3</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Wednesday</td>
<td>7</td>
<td>70</td>
<td>28</td>
</tr>
</tbody>
</table>

Other Correct Responses

- N/A

For this item, a full-credit response includes:
  - A correctly completed table (1 point).
Grade 6
Math
Practice Test

Question 13

Sample Responses
Sample Response: 1 point

Gabby makes banana bread at her bakery every Monday and Wednesday. Her banana bread recipe calls for the ratios of ingredients shown.

- 5 cups of sugar for every 50 tablespoons of butter
- 80 tablespoons of butter for every 32 bananas

Complete the table to show the ratio of ingredients Gabby used to make her banana bread.

<table>
<thead>
<tr>
<th></th>
<th>Cups of Sugar</th>
<th>Tablespoons of Butter</th>
<th>Number of Bananas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>3</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Wednesday</td>
<td>7</td>
<td>70</td>
<td>28</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly used ratio and rate reasoning to complete the table of equivalent ratios.

The ratio of sugar to butter is 5:50 which equals 1:10. Therefore, 3 cups of sugar require 30 tablespoons of butter.

The ratio of butter to bananas is 80:32 which equals 5:2. Therefore, 30 tablespoons of butter require 12 bananas.

Conversely, 28 bananas require 70 tablespoons of butter and therefore, 7 cups of sugar.
Sample Response: 1 point

Gabby makes banana bread at her bakery every Monday and Wednesday. Her banana bread recipe calls for the ratios of ingredients shown:

- 5 cups of sugar for every 50 tablespoons of butter
- 80 tablespoons of butter for every 32 bananas

Complete the table to show the ratio of ingredients Gabby used to make her banana bread.

<table>
<thead>
<tr>
<th></th>
<th>Cups of Sugar</th>
<th>Tablespoons of Butter</th>
<th>Number of Bananas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>3</td>
<td>30.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Wednesday</td>
<td>7.0</td>
<td>70.0</td>
<td>28</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly used ratio and rate reasoning to complete the table of equivalent ratios.

The ratio of sugar to butter is 5:50 which equals 1:10. Therefore, 3 cups of sugar require 30 tablespoons of butter.

The ratio of butter to bananas is 80:32 which equals 5:2. Therefore, 30 tablespoons of butter require 12 bananas.

Conversely, 28 bananas require 70 tablespoons of butter and therefore, 7 cups of sugar.
Sample Response: 0 points

Gabby makes banana bread at her bakery every Monday and Wednesday. Her banana bread recipe calls for the ratios of ingredients shown:
- 5 cups of sugar for every 50 tablespoons of butter
- 80 tablespoons of butter for every 32 bananas

Complete the table to show the ratio of ingredients Gabby used to make her banana bread.

<table>
<thead>
<tr>
<th></th>
<th>Cups of Sugar</th>
<th>Tablespoons of Butter</th>
<th>Number of Bananas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>3</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Wednesday</td>
<td>5.6</td>
<td>56</td>
<td>28</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly use ratio and rate reasoning to complete the table of equivalent ratios.

The student may have put the correct number of tablespoons of butter for Monday by multiplying the cups of sugar by 10, to get 30, and then incorrectly halved that number for the number of bananas, to get 15. The student may then have used the same strategy, but working backward, for Wednesday, by doubling 28 to make 56 tablespoons of butter, and then dividing by 10 to get 5.6 cups of sugar. The student did not realize that the ratio of tablespoons of butter to number of bananas is 5:2.
Notes on Scoring

This response earns no credit (0 points) because the student did not correctly use ratio and rate reasoning to complete the table of equivalent ratios.

The student may have incorrectly assumed that Gabby makes the same amount of banana bread each day and, after calculating the correct amount of butter for Monday, may have simply copied the 28 from Wednesday for the number of bananas for Monday and copied the 3 from Monday for the cups of sugar for Wednesday.
Question 14

Students at a school went on a trip. The given equation models the total cost of the trip, where \(x\) is the number of students who went on the trip.

\[18x = 900\]

How many students went on the trip?

Points Possible: 1

Content Cluster: Reason about and solve one-variable equations and inequalities.

Content Standard: Solve real-world and mathematical problems by writing and solving equations of the form \(x + p = q\) and \(px = q\) for cases in which \(p, q\) and \(x\) are all nonnegative rational numbers. (6.EE.7)

Scoring Guidelines

Exemplar Response

- 50

Other Correct Responses

- Any equivalent value

For this item, a full-credit response includes:

- A correct value (1 point).
Sample Response: 1 point

Students at a school went on a trip. The given equation models the total cost of the trip, where $x$ is the number of students who went on the trip.

$18x = 900$

How many students went on the trip?

50

Notes on Scoring

This response earns full credit (1 point) because the student correctly solved the equation of the form $px = q$. 
Sample Response: 1 point

Students at a school went on a trip. The given equation models the total cost of the trip, where $x$ is the number of students who went on the trip.

$18x = 900$

How many students went on the trip?

\[
\begin{array}{c}
900 \\
18 \\
\end{array}
\]

Notes on Scoring

This response earns full credit (1 point) because the student correctly solved the equation of the form $px = q$, giving an equivalent value for the correct response.
Sample Response: 0 points

Students at a school went on a trip. The given equation models the total cost of the trip, where $x$ is the number of students who went on the trip.

$18x = 900$

How many students went on the trip?

$0.02$

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly solve the equation of the form $px = q$. The student may have divided 18 by 900 instead of correctly dividing 900 by 18.
Sample Response: 0 points

Students at a school went on a trip. The given equation models the total cost of the trip, where \( x \) is the number of students who went on the trip.

\[ 18x = 900 \]

How many students went on the trip?

\[
\begin{array}{c}
\frac{18}{900} \\
\end{array}
\]

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly solve the equation of the form \( px = q \).

The student may have incorrectly divided both sides of the equation by 900 instead of dividing both sides by 18.
Grade 6
Math
Practice Test

Question 15

Question and Scoring Guidelines
Question 15

The area of a rectangular tabletop is 4 square feet ($ft^2$). Cassie will cover the tabletop with square tiles that each have an area of 1 square inch ($in^2$).

How many tiles does Cassie need to completely cover the tabletop?

**Points Possible:** 1

**Content Cluster:** Understand ratio concepts and use ratio reasoning to solve problems.

**Content Standard:** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. (6.RP.3d)
**Scoring Guidelines**

**Exemplar Response**
- 576

**Other Correct Responses**
- Any equivalent value

For this item, a full-credit response includes:
- A correct value (1 point).
Sample Response: 1 point

The area of a rectangular tabletop is 4 square feet ($ft^2$). Cassie will cover the tabletop with square tiles that each have an area of 1 square inch ($in^2$).

How many tiles does Cassie need to completely cover the tabletop?

576

Notes on Scoring

This response earns full credit (1 point) because the student correctly used ratio reasoning to convert measurement units.

1 square foot is 12 by 12 inches, giving 144 square inches. 4 square feet is therefore 4 times 144 square inches, resulting in 576 square inches and 576 tiles needed.
Sample Response: 1 point

The area of a rectangular tabletop is 4 square feet (ft²). Cassie will cover the tabletop with square tiles that each have an area of 1 square inch (in²).

How many tiles does Cassie need to completely cover the tabletop?

\[
\begin{array}{c}
\frac{4}{144} \\
\end{array}
\]

Notes on Scoring

This response earns full credit (1 point) because the student correctly converted measurement units into a fraction equivalent to 576. Four square feet divided by \(\frac{1}{144}\) indicates that the student knows that there are 144 square inches in a square foot and that each tile would be \(\frac{1}{144}\) of a square foot.
Sample Response: 0 points

The area of a rectangular tabletop is 4 square feet ($ft^2$). Cassie will cover the tabletop with square tiles that each have an area of 1 square inch ($in.^2$).

How many tiles does Cassie need to completely cover the tabletop?

2304

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly convert the measurement units.

The student may have found that 1 square foot is 144 square inches, and then multiplied this number by 4 to find the number of square inches in 4 square feet, 576. Then, the student may have incorrectly multiplied yet another time by 4 to get 2304 tiles.
Sample Response: 0 points

The area of a rectangular tabletop is 4 square feet ($ft^2$). Cassie will cover the tabletop with square tiles that each have an area of 1 square inch ($in^2$).

How many tiles does Cassie need to completely cover the tabletop?

1152

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly convert the measurement units.

The student may have found that 1 square foot is 144 square inches, and then multiplied this number by 4 to find the number of square inches in 4 square feet, 576. Then, the student may have incorrectly multiplied this value by 2, because of the exponent, to get 1152 tiles.
Grade 6
Math
Practice Test

Question 16

Question and Scoring Guidelines
Question 16

Ethan asks his seventh-grade class at Harmon Middle School four questions.

Which question that Ethan asks is a statistical question?

A. What is your favorite subject this year?
B. Who is the principal of Harmon Middle School?
C. How many subjects are there in seventh grade?
D. How many students enrolled in seventh grade at the start of this year?

Points Possible: 1

Content Cluster: Develop understanding of statistical problem solving.

Content Standard: Develop statistical reasoning by using the GAISE model. (6.SP.1)
Scoring Guidelines

Rationale for Option A: **Key** - The student correctly selected the statistical question, because it anticipates variability in the responses.

Rationale for Option B: This is incorrect. The student may have thought that a statistical question has only one correct answer.

Rationale for Option C: This is incorrect. The student may have thought that a statistical question must have a numerical answer.

Rationale for Option D: This is incorrect. The student may have thought that any question about his entire class was a statistical question.

Sample Response: 1 point

Ethan asks his seventh-grade class at Harmon Middle School four questions:

Which question that Ethan asks is a statistical question?

- What is your favorite subject this year?
- Who is the principal of Harmon Middle School?
- How many subjects are there in seventh grade?
- How many students enrolled in seventh grade at the start of this year?
Grade 6
Math
Practice Test

Question 17

Question and Scoring Guidelines
On one day in December, the average temperature in Columbus was \(-2\) degrees Fahrenheit, and the average temperature in Cleveland was \(-7\) degrees Fahrenheit.

Create an inequality to compare these two temperatures.

**Points Possible:** 1

**Content Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers.

**Content Standard:** Understand ordering and absolute value of rational numbers.

b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. For example, write \(-3^\circ C > -7^\circ C\) to express the fact that \(-3^\circ C\) is warmer than \(-7^\circ C\). (6.NS.7b)
Scoring Guidelines

Exemplar Response
• $-7 < -2$

Other Correct Responses
• $-2 > -7$

For this item, a full-credit response includes:
• A correct inequality (1 point).
Grade 6
Math
Practice Test

Question 17

Sample Responses
Sample Response: 1 point

On one day in December, the average temperature in Columbus was –2 degrees Fahrenheit, and the average temperature in Cleveland was –7 degrees Fahrenheit.

Create an inequality to compare these two temperatures.

\[-2 > -7\]

Notes on Scoring

This response earns full credit (1 point) because the student correctly created an inequality that shows that the temperature –2°F is greater than –7°F.
Sample Response: 1 point

On one day in December, the average temperature in Columbus was –2 degrees Fahrenheit, and the average temperature in Cleveland was –7 degrees Fahrenheit.

Create an inequality to compare these two temperatures.

\[-7 < -2\]

Notes on Scoring

This response earns full credit (1 point) because the student correctly created an inequality that shows that the temperature –7°F is less than –2°F.
Sample Response: 0 points

On one day in December, the average temperature in Columbus was –2 degrees Fahrenheit, and the average temperature in Cleveland was –7 degrees Fahrenheit.

Create an inequality to compare these two temperatures.

\[-7 > -2\]

Notes on Scoring

This response earns no credit (0 points) because the student did not create an inequality that shows that the temperature –7°F Fahrenheit is less than –2°F Fahrenheit. Instead, the student created an inequality that shows that –7°F Fahrenheit is greater than –2°F Fahrenheit.
On one day in December, the average temperature in Columbus was –2 degrees Fahrenheit, and the average temperature in Cleveland was –7 degrees Fahrenheit.

Create an inequality to compare these two temperatures.

\[2 > -7\]

Notes on Scoring

This response earns no credit (0 points) because the student created an inequality using positive 2 instead of negative 2.
Grade 6
Math
Practice Test

Question 18

Question and Scoring Guidelines
A chef makes 3 containers of soup that fill a total of 120 soup bowls. Each container of soup costs $30 to make. What is the cost per bowl for the soup?

\[
\$\]

**Points Possible:** 1

**Content Cluster:** Understand ratio concepts and use ratio reasoning to solve problems.

**Content Standard:** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? (6.RP.3b)
Scoring Guidelines

Exemplar Response
• $0.75

Other Correct Responses
• Any equivalent value

For this item, a full-credit response includes:
• The correct amount (1 point).
Question 18

Sample Responses
Sample Response: 1 point

A chef makes 3 containers of soup that fill a total of 120 soup bowls. Each container of soup costs $30 to make. What is the cost per bowl for the soup?

$0.75

Notes on Scoring

This response earns full credit (1 point) because the student responded with the correct cost per bowl of soup, $0.75. The student may have multiplied $30 by 3 to get a total cost of $90, and then divided that cost by 120 bowls, which results in a cost per bowl of $0.75.
**Sample Response: 1 point**

A chef makes 3 containers of soup that fill a total of 120 soup bowls. Each container of soup costs $30 to make.

What is the cost per bowl for the soup?

\[
\frac{30}{40}
\]

**Notes on Scoring**

This response earns full credit (1 point) because the student responded with a fraction equivalent to $0.75. The student may have divided 120 bowls of soup by 3, to find out how many bowls of soup there were in each container (40). The student may have then divided the $30 by the 40 bowls of soup to get the cost per bowl, and answered with that fraction \(\frac{30}{40}\).

Although this response is not expressed in an appropriate real-world format (as a decimal), the response earns full credit.
Sample Response: 0 points

A chef makes 3 containers of soup that fill a total of 120 soup bowls. Each container of soup costs $30 to make. What is the cost per bowl for the soup?

\[
\begin{array}{c}
\text{\$} \quad \frac{30}{360}
\end{array}
\]

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the cost per bowl of soup, which is $0.75. The student may have thought that there were 120 bowls of soup in each of the three containers, resulting in 360 bowls of soup. The student may have then divided the $30 by 360 and answered in fractional form.
Sample Response: 0 points

A chef makes 3 containers of soup that fill a total of 120 soup bowls. Each container of soup costs $30 to make. What is the cost per bowl for the soup?

$ \frac{40}{30}$

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate the cost per bowl of soup, which is $0.75. The student may have divided 120 bowls of soup by 3 to find out how many bowls of soup there were in each container (40). The student may have then incorrectly divided the 40 bowls of soup by the cost, $30, and answered with that fraction $\left(\frac{40}{30}\right)$. 
Grade 6
Math
Practice Test

Question 19

Question and Scoring Guidelines
Question 19

An expression is given.

\[ 7b - 3 \]

Which phrase describes the expression?

A. the difference of 7 plus a number \( b \) and 3
B. 7 times the difference of a number \( b \) and 3
C. 3 subtracted from the product of 7 and a number \( b \)
D. the product of 3 subtracted from 7 and a number \( b \)

Points Possible: 1

Content Cluster: Apply and extend previous understandings of arithmetic to algebraic expressions.

Content Standard: Write, read, and evaluate expressions in which letters stand for numbers.

a. Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract \( y \) from 5” as \( 5 - y \). (6.EE.2a)
Scoring Guidelines

**Rationale for Option A:** This is incorrect. The student may have incorrectly thought that the omission of an operator in the term $7b$ means that he or she should find the sum of 7 and $b$.

**Rationale for Option B:** This is incorrect. The student may have thought that subtraction should come before multiplication.

**Rationale for Option C:** Key - The student correctly identified the phrase that describes the given expression.

**Rationale for Option D:** This is incorrect. The student may have thought that subtraction should come before multiplication, and subtracted the two numbers in the expression.

**Sample Response: 1 point**

A expression is given.

$7b - 3$

Which phrase describes the expression?

- **A** the difference of 7 plus a number $b$ and 3
- **B** 7 times the difference of a number $b$ and 3
- **C** 3 subtracted from the product of 7 and a number $b$
- **D** the product of 3 subtracted from 7 and a number $b$
Grade 6
Math
Practice Test

Question 20

Question and Scoring Guidelines
A data set is displayed in the dot plot shown.

What is the mean of the data set?

**Points Possible:** 1

**Content Cluster:** Summarize and describe distributions.

**Content Standard:** Summarize numerical data sets in relation to their context.

c. Find the quantitative measures of center (median and/or mean) for a numerical data set and recognize that this value summarizes the data set with a single number. Interpret mean as an equal or fair share. Find measures of variability (range and interquartile range) as well as informally describe the shape and the presence of clusters, gaps, peaks, and outliers in a distribution. (6.SP.5c)
Scoring Guidelines

Exemplar Response
- 5

Other Correct Responses
- Any equivalent value

For this item, a full-credit response includes:
- The correct value (1 point).
Sample Response: 1 point

A data set is displayed in the dot plot shown.

What is the mean of the data set?

5

Notes on Scoring

This response earns full credit (1 point) because the student correctly summarized the numerical data set by calculating the mean.

\[
3 + 3 + 3 + 4 + 6 + 6 + 7 + 8 = 40
\]
\[
40 \div 8 = 5
\]
Sample Response: 1 point

A data set is displayed in the dot plot shown.

What is the mean of the data set?

\[
\frac{40}{8}
\]

Notes on Scoring

This response earns full credit (1 point) because the student correctly summarized the numerical data set by calculating the mean and responding with a fraction equivalent to 5.

\[
\frac{3 + 3 + 3 + 4 + 6 + 6 + 7 + 8}{8} = \frac{40}{8}
\]
Sample Response: 0 points

A data set is displayed in the dot plot shown.

What is the mean of the data set?

3

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly summarize the numerical data set and respond with the mean. The student may have confused the mean with the mode of the data set and therefore responded with this value, 3.
Notes on Scoring

This response earns no credit (0 points) because the student did not correctly summarize the numerical data set. The student may have correctly added all the data points to get a sum of 40. Then, the student may have confused which number should be the divisor and divided the number of data points by the sum of the values, $\frac{8}{40}$, instead of dividing the sum by the number of data points, $\frac{40}{8}$. 
Grade 6
Math
Practice Test

Question 21

Question and Scoring Guidelines
Question 21

What is 58% of 18?

Points Possible: 1

Content Cluster: Understand ratio concepts and use ratio reasoning to solve problems.

Content Standard: Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means \(\frac{30}{100}\) times the quantity); solve problems involving finding the whole, given a part and the percent. (6.RP.3c)
Scoring Guidelines

Exemplar Response
- 10.44

Other Correct Responses
- Any equivalent value

For this item, a full-credit response includes:
- The correct value (1 point).
Grade 6
Math
Practice Test

Question 21

Sample Responses
Sample Response: 1 point

What is 58% of 18?

10.44

Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated $\frac{58}{100}$ of 18.
Sample Response: 0 points

Notes on Scoring

This response earns no credit (0 points) because the student responded with an answer rounded to the tenths place value. When rounding is not specifically asked for in a mathematical item, the student should not round the final answer.
Sample Response: 0 points

What is 58% of 18?

104.4

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate 58% of 18. The student may have multiplied $\frac{58}{100}$ by 18 but placed the digits in the incorrect place value position, resulting in an answer 10 times the correct answer.
Grade 6
Math
Practice Test

Question 22

Question and Scoring Guidelines
Question 22

An expression is shown.
\[ \frac{1}{2}(a + b) - c \]

Select all of the descriptions that apply to each part of the expression.

<table>
<thead>
<tr>
<th></th>
<th>Factor</th>
<th>Sum</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a + b)</td>
<td>❑</td>
<td>❑</td>
<td>❑</td>
</tr>
<tr>
<td>(\frac{1}{2})</td>
<td>❑</td>
<td></td>
<td>❑</td>
</tr>
<tr>
<td>(c)</td>
<td>❑</td>
<td>❑</td>
<td></td>
</tr>
</tbody>
</table>

Points Possible: 1

Content Cluster: Apply and extend previous understandings of arithmetic to algebraic expressions.

Content Standard: Write, read, and evaluate expressions in which letters stand for numbers.
b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. For example, describe the expression \(2(8 + 7)\) as a product of two factors; view \((8 + 7)\) as both a single entity and a sum of two terms. (6.EE.2b)
Scoring Guidelines

For this item, a full-credit response includes:

- “Factor” and “Sum” selected for “(a + b)”;
  AND
- “Factor” selected for “\( \frac{1}{2} \)”;
  AND
- “Term” selected for “c” (1 point).
Grade 6 Math Practice Test

Question 22

Sample Responses
Sample Response: 1 point

An expression is shown.

\[ \frac{1}{2} (a + b) - c \]

Select all of the descriptions that apply to each part of the expression.

<table>
<thead>
<tr>
<th></th>
<th>Factor</th>
<th>Sum</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>((a + b))</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>(\frac{1}{2})</td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns full credit (1 point) because the student correctly identified all of the mathematical terms that apply to each part of the expression.
Sample Response: 0 points

An expression is shown.

\[ \frac{1}{2} (a + b) - c \]

Select all of the descriptions that apply to each part of the expression.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Sum</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>((a + b))</td>
<td>☑️</td>
<td>☐️</td>
</tr>
<tr>
<td>(\frac{1}{2})</td>
<td>☑️</td>
<td>☐️</td>
</tr>
<tr>
<td>(c)</td>
<td>☐️</td>
<td>☐️</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly identify all of the mathematical terms that apply to each part of the expression. The student may not have recognized that \((a + b)\) as a single entity is a factor in the expression and only saw it as a sum of two terms.
Sample Response: 0 points

An expression is shown.
\[ \frac{1}{2} (a + b) - c \]

Select all of the descriptions that apply to each part of the expression.

<table>
<thead>
<tr>
<th></th>
<th>Factor</th>
<th>Sum</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a + b)</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

Notes on Scoring

This response earns no credit (0 points) because the student correctly identified all of the mathematical terms that apply to each part of the expression but also marked that “1/2” is a term.

The student may have incorrectly thought that because the fraction 1/2 also can be interpreted as the division of “one divided by two” that it could be described as a term as well as a factor.
Grade 6
Math
Practice Test

Question 23

Question and Scoring Guidelines
A point with the coordinates \((-c, -d)\) is shown on the coordinate grid.

Place each point on the grid to show its location.

**Points Possible:** 1

**Content Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers.

**Content Standard:** Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.

b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. (6.NS.6b)
Scoring Guidelines

Exemplar Response

Other Correct Responses

- N/A

For this item, a full-credit response includes:

- Three correct placements (1 point).
Grade 6
Math
Practice Test

Question 23

Sample Responses
Sample Response: 1 point

A point with the coordinates \((-c, -d)\) is shown on the coordinate grid.
Place each point on the grid to show its location.

Notes on Scoring

This response earns full credit (1 point) because the student correctly placed all three points on the coordinate grid, recognizing that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
Sample Response: 0 points

A point with the coordinates \((-c, -d)\) is shown on the coordinate grid.
Place each point on the grid to show its location.

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly place all three points on the coordinate grid. The student may have confused the x-axis with the y-axis and therefore placed both points \((c, -d)\) and \((-c, d)\) in the incorrect places.
Sample Response: 0 points

A point with the coordinates \((-c, -d)\) is shown on the coordinate grid.
Place each point on the grid to show its location.

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly place all three points on the coordinate grid. The student incorrectly placed point \((-c, d)\) 4 units to the left of the y-axis when the initial point, \((-c, -d)\), is only 3 units to the left of the y-axis.
Grade 6
Math
Practice Test

Question 24

Question and Scoring Guidelines
Question 24

Jen is 3 years older than Nancy. Let $x$ represent Nancy’s age. Let $y$ represent Jen’s age. Create an equation to show Nancy’s age, $x$, in terms of Jen’s age, $y$.

Points Possible: 1

Content Cluster: Represent and analyze quantitative relationships between dependent and independent variables.

Content Standard: Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time. (6.EE.9)
Scoring Guidelines

Exemplar Response
• \( x = y - 3 \)

Other Correct Responses
• Any equivalent equation

For this item, a full-credit response includes:
• A correct equation (1 point).
Grade 6
Math
Practice Test

Question 24

Sample Responses
Sample Response: 1 point

Jen is 3 years older than Nancy. Let $x$ represent Nancy's age. Let $y$ represent Jen's age. Create an equation to show Nancy's age, $x$, in terms of Jen's age, $y$.

$x = y - 3$

Notes on Scoring

This response earns full credit (1 point) because the student created a correct equation to model the situation. If Jen is $y$ years old and she is 3 years older than Nancy, then Nancy is 3 years younger than Jen ($y - 3$). This leads to the equation $x = y - 3$. 
Sample Response: 1 point

Jen is 3 years older than Nancy. Let $x$ represent Nancy’s age. Let $y$ represent Jen’s age. Create an equation to show Nancy’s age, $x$, in terms of Jen’s age, $y$.

\[ x + 3 = y \]

Notes on Scoring

This response earns full credit (1 point) because the student created a correct equation to model the situation. Jen is $y$ years old and she is 3 years older than Nancy. When $x$ represents Nancy’s age, then $(x + 3)$ is Jen’s age, giving the equation $x + 3 = y$. 
**Sample Response: 0 points**

Jen is 3 years older than Nancy. Let \( x \) represent Nancy's age. Let \( y \) represent Jen's age. Create an equation to show Nancy's age, \( x \), in terms of Jen's age, \( y \).

\[
x - 3 = y
\]

**Notes on Scoring**

This response earns no credit (0 points) because the student did not create a correct equation to model the situation. When \( x \) is Nancy's age and Jen is 3 years older than Nancy, the expression for Jen's age is \( x + 3 \). The student may have confused the two variables in creating the equation.
Sample Response: 0 points

Jen is 3 years older than Nancy. Let $x$ represent Nancy’s age. Let $y$ represent Jen’s age. Create an equation to show Nancy’s age, $x$, in terms of Jen’s age, $y$.

$y > x$

Notes on Scoring

This response earns no credit (0 points) because the student did not create a correct equation to model the situation. The student has correctly understood that Jen’s age, $y$, is greater than Nancy’s age, $x$, and created an inequality that shows this. However, the student is directed to create an equation to show how the girls’ ages relate to one another, not just who is the older of the two.
Grade 6
Math
Practice Test

Question 25

Question and Scoring Guidelines
Question 25

A bank converts U.S. dollars to European euros at a rate of $1 for 0.88 euros. Kelsey wants 100 euros for her trip to Europe.

How much money, in dollars, does Kelsey need to give the bank?

$ __________

Points Possible: 1

**Content Cluster:** Understand ratio concepts and use ratio reasoning to solve problems.

**Content Standard:** Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities. (6.RP.3d)
Scoring Guidelines

Exemplar Response

• $113.63

Other Correct Responses

• $113
• $114
• $113.64
• Any value between $113.63 and $113.64

For this item, a full-credit response includes:

• The correct value (1 point).
Grade 6
Math
Practice Test

Question 25

Sample Responses
Sample Response: 1 point

A bank converts U.S. dollars to European euros at a rate of $1 for 0.88 euros. Kelsey wants 100 euros for her trip to Europe.

How much money, in dollars, does Kelsey need to give the bank?

$ 113.64

Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated how much 100 euros would cost and rounded to the nearest hundredth of a dollar (cent). The student correctly calculated that 0.88 euros cost $1, so 100 euros would cost 100 divided by 0.88, which results in a cost of $113.6363636... or approximately $113.64.
Sample Response: 1 point

A bank converts U.S. dollars to European euros at a rate of $1 for 0.88 euros. Kelsey wants 100 euros for her trip to Europe.

How much money, in dollars, does Kelsey need to give the bank?

$ \frac{100}{0.88}$

Notes on Scoring

This response earns full credit (1 point) because the student correctly calculated how much 100 euros would cost and gave an equivalent fraction as a response. The student correctly calculated that 0.88 euros cost $1, so 100 euros would cost 100 divided by 0.88, which results in a cost of $113.6363636. . . . Although this response is not expressed in an appropriate real-world format (in dollars and cents), the response earns full credit.
**Sample Response: 0 points**

A bank converts U.S. dollars to European euros at a rate of $1 for 0.88 euros. Kelsey wants 100 euros for her trip to Europe.

How much money, in dollars, does Kelsey need to give the bank?

$ 88

**Notes on Scoring**

This response earns no credit (0 points) because the student did not correctly calculate how much 100 euros would cost. The student may have mistakenly thought that it costs $0.88 for 1 euro and therefore multiplied 0.88 by 100 to get $88.
Sample Response: 0 points

A bank converts U.S. dollars to European euros at a rate of $1 for 0.88 euros. Kelsey wants 100 euros for her trip to Europe.

How much money, in dollars, does Kelsey need to give the bank?

$ 100

Notes on Scoring

This response earns no credit (0 points) because the student did not correctly calculate how much 100 euros would cost. The student may have confused the given numbers and thought that each euro cost $1 and therefore multiplied by 100 to get a cost of $100.
Question 26

Question and Scoring Guidelines
**Question 26**

Place an expression in each blank box to order the expressions from least to greatest in value.

<table>
<thead>
<tr>
<th>Least</th>
<th></th>
<th></th>
<th></th>
<th>Greatest</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>3.1</td>
<td>$</td>
<td>$-3$</td>
<td>$-3.75$</td>
</tr>
</tbody>
</table>

**Points Possible:** 1

**Content Cluster:** Apply and extend previous understandings of numbers to the system of rational numbers.

**Content Standard:** Understand ordering and absolute value of rational numbers. (6.NS.7)

c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. For example, for an account balance of $-30$ dollars, write $| -30 | = 30$ to describe the size of the debt in dollars. (6.NS.7c)
Scoring Guidelines

Exemplar Response

Other Correct Responses

• N/A

For this item, a full-credit response includes:

• The correct ordering (1 point).
Grade 6
Math
Practice Test

Question 26

Sample Responses
Sample Response: 1 point

Place an expression in each blank box to order the expressions from least to greatest in value.

Least  

-3.75  
\[-\left| -3\frac{1}{5} \right|\]  
-3  
|3.1|  
1 - 3\frac{1}{2}  
\[-\left| -3\frac{1}{5} \right|\]  

Greatest

Notes on Scoring

This response earns full credit (1 point) because the student correctly places the expressions in order from least to greatest.
Notes on Scoring

This response earns no credit (0 points) because the student places two of the expressions in incorrect order from least to greatest. The student may think that all expressions are asking for the absolute value and does not realize that two of the expressions are not.

The value of −3.75 is less than −3, so it should be placed to the left of −3, and the value of −|−3 1/5| would be −3 1/5, so it should be placed between −3.75 and −3.
Sample Response: 0 points

Place an expression in each blank box to order the expressions from least to greatest in value.

Least | Greatest

[3.1], −3, [−3 1/2], −3.75, [−3 1/5]

Notes on Scoring

This response earns no credit (0 points) because the student places two of the expressions in incorrect order from least to greatest. The student may misunderstand the values of the absolute value of negative numbers.

The absolute value means how far a number is from zero on a number line and is always a positive number. Therefore, |−3| is positive 3 and |−3 1/5| is positive 3 1/5. However, there is a negative sign in front of the absolute value sign on the expression −|−3 1/5|, which makes the value of the expression −3 1/5.
Sample Response: 0 points

Place an expression in each blank box to order the expressions from least to greatest in value.

[3.1]  \[ -3 \]  \[ -\left| -3 \frac{1}{3} \right| \]  \[ -3.75 \]  \[ 3.1 \]  \[ 1 - 3 \frac{1}{2} \]

Least  \[ \rightarrow \]  Greatest

Notes on Scoring

This response earns no credit (0 points) because the student does not order the expressions from least to greatest value. The student does not order the negative numbers correctly. They are ordered from greatest to least.
Question and Scoring Guidelines
Question 27

A group of students plays sports after school.
- 12 students play soccer.
- 8 students play tennis.

Complete the sentence to describe a correct ratio.

The ratio of students who play soccer to blank is blank.

Points Possible: 1

Content Cluster: Understand ratio concepts and use ratio reasoning to solve problems.

Content Standard: Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.” (6.RP.1)

Scoring Guidelines

Exemplar Response

- The ratio of students who play soccer to students who play tennis is 12:8.

Other Correct Responses

- The ratio of students who play soccer to total students is 12:20.

For this item, a full-credit response includes:

- A correct ratio statement (1 point).
Grade 6
Math
Practice Test

Question 27

Sample Responses
Sample Response: 1 point

A group of students plays sports after school.

- 12 students play soccer.
- 8 students play tennis.

Complete the sentence to describe a correct ratio.

The ratio of students who play soccer to [students who play tennis] is [12:8].

Notes on Scoring

This response earns full credit (1 point) because the student completes the sentence and selects a correct ratio.
Sample Response: 1 point

A group of students plays sports after school.

- 12 students play soccer.
- 8 students play tennis.

Complete the sentence to describe a correct ratio.

The ratio of students who play soccer to total students is 12:20.

Notes on Scoring

This response earns full credit (1 point) because the student completes the sentence and selects a correct ratio.
Sample Response: 0 points

A group of students plays sports after school.

- 12 students play soccer.
- 8 students play tennis.

Complete the sentence to describe a correct ratio.

The ratio of students who play soccer to students who play tennis is 8:12.

Notes on Scoring

This response earns no credit (0 points) because in completing the sentence the student does not select a correct ratio. The selected ratio is the opposite of the correct one.
Sample Response: 0 points

A group of students plays sports after school.

- 12 students play soccer.
- 8 students play tennis.

Complete the sentence to describe a correct ratio.

The ratio of students who play soccer to total students is $8:20$.

Notes on Scoring

This response earns no credit (0 points) because in completing the sentence the student does not select a correct ratio. Instead, the student incorrectly selects a ratio for students who play tennis to total students.
Sample Response: 0 points

A group of students plays sports after school.

- 12 students play soccer.
- 8 students play tennis.

Complete the sentence to describe a correct ratio.

The ratio of students who play soccer to students who play tennis is 12:20.

Notes on Scoring

This response earns no credit (0 points) because in completing the sentence the student does not select a correct ratio. Instead, the student incorrectly selects a ratio for students who play soccer to total students.