New York State Testing Program

Mathematics

Scoring Guide for Sample Test 2005

Grade 8
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<th>Type</th>
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<td>Type</td>
<td>Points</td>
<td>Strand</td>
<td>Content Performance Indicator</td>
<td>Answer Key</td>
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<tr>
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<td>8.A.7</td>
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<tr>
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<td>Selected Response</td>
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<td>Measurement</td>
<td>7.M.1</td>
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<td>n/a</td>
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<td>7.A.4</td>
<td>n/a</td>
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</table>

**Grade 8, Book 3**

<table>
<thead>
<tr>
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<th>Type</th>
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<td>Measurement</td>
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<td>n/a</td>
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</table>
### 2-Point Holistic Rubric

**Score Points:**

<table>
<thead>
<tr>
<th>2 Points</th>
<th>A two-point response is complete and correct.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This response</td>
</tr>
<tr>
<td></td>
<td>- demonstrates a thorough understanding of the mathematical concepts and/or procedures embodied in the task</td>
</tr>
<tr>
<td></td>
<td>- indicates that the student has completed the task correctly, using mathematically sound procedures</td>
</tr>
<tr>
<td></td>
<td>- contains clear, complete explanations and/or adequate work when required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1 Point</th>
<th>A one-point response is only partially correct.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>This response</td>
</tr>
<tr>
<td></td>
<td>- indicates that the student has demonstrated only a partial understanding of the mathematical concepts and/or procedures embodied in the task</td>
</tr>
<tr>
<td></td>
<td>- addresses some elements of the task correctly but may be incomplete or contain some procedural or conceptual flaws</td>
</tr>
<tr>
<td></td>
<td>- may contain an incorrect solution but applies a mathematically appropriate process</td>
</tr>
<tr>
<td></td>
<td>- may contain a correct numerical answer but required work is not provided</td>
</tr>
</tbody>
</table>

| 0 Points | A zero-point response is incorrect, irrelevant, incoherent, or contains a correct response arrived at using an obviously incorrect procedure. Although some parts may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task. |

### Condition Code A

Condition Code A is applied whenever a student who is present for a test session leaves an entire open-ended item in that session blank (no response).
# 3-Point Holistic Rubric

Score Points:

<table>
<thead>
<tr>
<th>Score Points</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Points</td>
<td>A three-point response is complete and correct. This response demonstrates a thorough understanding of the mathematical concepts and/or procedures embodied in the task, indicates that the student has completed the task correctly, using mathematically sound procedures, contains clear, complete explanations and/or adequate work when required.</td>
</tr>
<tr>
<td>2 Points</td>
<td>A two-point response is partially correct. This response demonstrates partial understanding of the mathematical concepts and/or procedures embodied in the task, addresses most aspects of the task, using mathematically sound procedures, may contain an incorrect solution but provides complete procedures, reasoning, and/or explanations, may reflect some misunderstanding of the underlying mathematical concepts and/or procedures.</td>
</tr>
<tr>
<td>1 Point</td>
<td>A one-point response is incomplete and exhibits many flaws but is not completely incorrect. This response demonstrates only a limited understanding of the mathematical concepts and/or procedures embodied in the task, may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete, exhibits multiple flaws related to a misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning, reflects a lack of essential understanding of the underlying mathematical concepts, may contain a correct numerical answer but required work is not provided.</td>
</tr>
<tr>
<td>0 Points</td>
<td>A zero-point response is incorrect, irrelevant, incoherent, or contains a correct response arrived at using an obviously incorrect procedure. Although some parts may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</td>
</tr>
</tbody>
</table>
Scoring Policies for Mathematics

1. If the question does not specifically direct students to show their work, teachers may not score any work that the student shows.

2. If the student does the work in other than a designated “Show your work” area, that work may still be scored.

3. If the question requires students to show their work, and a student shows appropriate work and clearly identifies a correct answer but fails to write the answer in that answer blank, the student should still receive full credit.

4. If the question requires students to show their work, and a student shows appropriate work and arrives at the correct answer but writes an incorrect answer in the answer blank, the student may not receive full credit.

5. If the student provides one legible response (and one response only), teachers should score the response, even if it has been crossed out.

6. If the student has written more than one response but has crossed some out, teachers should score only the response that has not been crossed out.

7. For questions in which students use a trial-and-error (guess-and-check) process, evidence of three rounds of trial-and-error must be present for the student to receive credit for the process. Trial-and-error items are not subject to Scoring Policy #6, since crossing out is part of the trial-and-error process.

8. If a response shows repeated occurrences of the same conceptual error within a question, the student should not be penalized more than once.

9. In questions that provide ruled lines for the students to write an explanation of their work, mathematical work shown elsewhere on the page may be considered and scored if, and only if, the student explicitly points to the work as part of the answer.

10. Responses containing a conceptual error may not receive more than fifty percent of the maximum score.

11. In all questions that provide a response space for one numerical answer and require work to be shown, if the correct numerical answer is provided but no work is shown, the score is 1.

12. In all questions that provide response spaces for two numerical answers and require work to be shown for both parts, if one correct numerical answer is provided but no work is shown in either part, the score is 0. If two correct numerical answers are provided but no work is shown in either part, the score is 1.

13. In all 3-point questions that provide response spaces for two numerical answers and require work to be shown in one part, if two correct numerical answers are provided but no work is shown, the score is 2.
Content-Specific Scoring Clarifications for Mathematics Tests

1. All necessary signs of operation should be present for work to be considered mathematically complete and correct. If signs of operation in the work shown are missing and it is absolutely clear and apparent in the student’s work which operation is being used, and all other work required is correct, the student should receive full credit.

2. In questions that require students to provide bar graphs, touching bars are acceptable only at Grades 3 and 4.

3. If the question asks the student to provide an expression and the student provides an equation, this is an acceptable response at Grades 3 and 4 only.

For additional clarification, see the web site http://www.emsc.nysed.gov/ciai/mst/instructrec.htm.
Monisha is making a quilt following the pattern shown below.

If all the horizontal lines are parallel, what is the value of $x$?

*Show your work.*

*Answer* ___________
QUESTION 28

STRAND 2: ALGEBRA

Complete and Correct Response:

- \( x + 3x + 20 = 180 \)
  \( 4x + 20 = 180 \)
  \( -20 \quad -20 \)

\[
\frac{4x}{4} = \frac{160}{4}
\]

\( x = 40 \)

OR other valid process

AND

- 40

Score Points:

Apply 2-point holistic rubric
Monisha is making a quilt following the pattern shown below.

If all the horizontal lines are parallel, what is the value of $x$?

*Show your work.*

\[
4x + 20 = 180
\]
\[
-20 -20
\]
\[
x = 40
\]

*Answer* \[40^\circ\]

This response is complete and correct.

Score Point - 2
Monisha is making a quilt following the pattern shown below.

If all the horizontal lines are parallel, what is the value of $x$?

*Show your work.*

\[
3x + 20 = 180 \\
-20 & -20 \\
3x & = 160 \\
\frac{3}{3} & \frac{160}{3} \\
x & = 53.3
\]

*Answer* $53^\circ$

This response is only partially correct. Although the answer is incorrect, some elements of the task are addressed by correctly solving the flawed equation to find the value of $x$.

**Score Point - 1**
Monisha is making a quilt following the pattern shown below.

If all the horizontal lines are parallel, what is the value of \( x \)?

*Show your work.*

\[ 3(x) + 20 = 20^\circ \]

*Answer* \( 20^\circ \)

This response is completely incorrect.

**Score Point - 0**
A path on a treasure map is shown on the grid below.

Complete the table below to calculate the total length of the path.

**ISLAND PATH**

<table>
<thead>
<tr>
<th>Path Section</th>
<th>Length (in miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of $AB$</td>
<td></td>
</tr>
<tr>
<td>Length of $BC$</td>
<td></td>
</tr>
<tr>
<td>Length of $CX$</td>
<td></td>
</tr>
<tr>
<td>Total Path Length</td>
<td></td>
</tr>
</tbody>
</table>
**Question 29**

**Strand 4: Measurement**

 completely and correct response:

**Island Path**

<table>
<thead>
<tr>
<th>Path Section</th>
<th>Length (in miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of AB</td>
<td>5</td>
</tr>
<tr>
<td>Length of BC</td>
<td>3</td>
</tr>
<tr>
<td>Length of CX</td>
<td>2</td>
</tr>
<tr>
<td>Total Path Length</td>
<td>10</td>
</tr>
</tbody>
</table>

OR other valid response

Note: Full credit should be given when all measurements are provided and within ± 0.1.

Partial credit should be given when two measurements are provided and within ± 0.25

Score Points:

Apply 2-point holistic rubric
A path on a treasure map is shown on the grid below.

Complete the table below to calculate the total length of the path.

**ISLAND PATH**

<table>
<thead>
<tr>
<th>Path Section</th>
<th>Length (in miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of AB</td>
<td>5</td>
</tr>
<tr>
<td>Length of BC</td>
<td>3</td>
</tr>
<tr>
<td>Length of CX</td>
<td>2</td>
</tr>
<tr>
<td>Total Path Length</td>
<td>10</td>
</tr>
</tbody>
</table>

This response is complete and correct.

Score Point - 2
A path on a treasure map is shown on the grid below.

Complete the table below to calculate the total length of the path.

<table>
<thead>
<tr>
<th>Path Section</th>
<th>Length (in miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of AB</td>
<td>1.75 miles</td>
</tr>
<tr>
<td>Length of BC</td>
<td>3 miles</td>
</tr>
<tr>
<td>Length of CX</td>
<td>2.10 miles</td>
</tr>
<tr>
<td>Total Path Length</td>
<td>9.35</td>
</tr>
</tbody>
</table>

This response is only partially correct. Two path sections are measured within an appropriate range of .25 miles.

Score Point - 1
Complete the table below to calculate the total length of the path.

<table>
<thead>
<tr>
<th>Path Section</th>
<th>Length (in miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of $\overline{AB}$</td>
<td>5 miles</td>
</tr>
<tr>
<td>Length of $\overline{BC}$</td>
<td>4 miles</td>
</tr>
<tr>
<td>Length of $\overline{CX}$</td>
<td>3 miles</td>
</tr>
<tr>
<td>Total Path Length</td>
<td>12 miles</td>
</tr>
</tbody>
</table>

This response is completely incorrect. Two of the three path section lengths are not measured within an appropriate range.

Score Point - 0
The function table below follows a function rule.

<table>
<thead>
<tr>
<th>$x$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>4</td>
<td>0.25</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

**Part A**

Complete the table by filling in the two missing numbers.

**Part B**

Based on the table, write a function rule that represents the relationship between $x$ and $y$.

**Rule**
Question 30

Strand 2: Algebra

Complete and Correct Response:

Part A

<table>
<thead>
<tr>
<th>( x )</th>
<th>( y )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0.5</td>
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<td>4</td>
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</tr>
<tr>
<td>5</td>
<td>0.2</td>
</tr>
<tr>
<td>10</td>
<td>0.1</td>
</tr>
</tbody>
</table>

OR other correct responses (such as fractional notation)

Part B

- \( y = \frac{1}{x} \) or \( x \cdot y = 1 \)

OR other valid rule including a verbal description which can be written as an equation

Score Points:

Apply 2-point holistic rubric
The function table below follows a function rule.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
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</thead>
<tbody>
<tr>
<td>0.5</td>
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<td>5</td>
<td>0.2</td>
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<tr>
<td>10</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**Part A**

Complete the table by filling in the two missing numbers.

**Part B**

Based on the table, write a function rule that represents the relationship between x and y.

\[
\text{Rule } y = \frac{1}{x}
\]

This response is complete and correct.

Score Point - 2
30 The function table below follows a function rule.

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>4</td>
<td>0.25</td>
</tr>
<tr>
<td>5</td>
<td>0.20</td>
</tr>
<tr>
<td>10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

**Part A**

Complete the table by filling in the two missing numbers.

**Part B**

Based on the table, write a function rule that represents the relationship between $x$ and $y$.

**Rule** $x \div \underline{1} = y$

This response is only partially correct. The table is completed correctly in Part A. However, an incorrect function rule is provided in Part B.

Score Point - 1
30. The function table below follows a function rule.

<table>
<thead>
<tr>
<th>$x$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>4</td>
<td>0.25</td>
</tr>
<tr>
<td>5</td>
<td>0.125</td>
</tr>
<tr>
<td>10</td>
<td>0.0625</td>
</tr>
</tbody>
</table>

**Part A**

Complete the table by filling in the two missing numbers.

**Part B**

Based on the table, write a function rule that represents the relationship between $x$ and $y$.

Rule: $x$ is multiplied by 2 and $y$ is divided by 2

This response is completely incorrect.

Score Point - 0
Jenna has a triangular garden, as shown in the diagram below.

What is the length, in feet, of side $m$?

*Show your work.*

*Answer* ______________ feet
QUESTION 31

STRAND 3: GEOMETRY

Complete and Correct Response:

- \(13^2 = m^2 + 5^2\)
- \(169 = m^2 + 25\)
- \(m^2 = 169 - 25\)
- \(m^2 = 144\)
- \(m = \sqrt{144}\)
- \(m = 12\)

OR other valid process

AND

- 12 feet

Score Points:

Apply 2-point holistic rubric
Jenna has a triangular garden, as shown in the diagram below.

What is the length, in feet, of side \( m \)?

**Show your work.**

\[
\begin{align*}
\text{Use the Pythagorean Theorem:} & \quad a^2 + b^2 = c^2 \\
\text{Given:} & \quad a^2 + m^2 = 13^2 \\
& \quad 25 + m^2 = 169 \\
& \quad m^2 = 144 \\
& \quad \sqrt{144} = 12 \\
& \quad m = 12 \\
\end{align*}
\]

**Answer** \( 12 \) feet

This response is complete and correct.

**Score Point - 2**
Jenna has a triangular garden, as shown in the diagram below.

![Triangular Garden Diagram](image)

What is the length, in feet, of side \( m \)?

**Show your work.**

\[
A^2 + b^2 = C^2 \\
5^2 + b^2 = 13^2 \\
25 + b^2 = 169 \\
b^2 = 144 \\
b = \sqrt{144} \\
b = 12
\]

**Answer** 3.5 feet

This response is only partially correct. The lengths of the sides are correctly substituted into the Pythagorean Theorem equation; however, the procedure for solving the equation is flawed, resulting in an incorrect answer.

**Score Point - 1**
Jenna has a triangular garden, as shown in the diagram below.

![Triangle Diagram]

What is the length, in feet, of side $m$?

**Show your work.**

\[ 5^2 + m^2 = 13^2 \]

\[ m^2 = 13^2 - 5^2 \]

\[ m^2 = 8^2 \]

**Answer** $8^2$ feet

This response is completely incorrect. Although an attempt to use square values is indicated by $5$ squared and $13$ squared, there is not a clear initial equation using the Pythagorean Theorem.

**Score Point - 0**
Brian drew a rectangle on the grid below. On the same grid, rotate the rectangle both 90° and 180° clockwise about the origin. Label point A from the rectangle Brian drew as A' on your 90° rotated figure and as A'' on your 180° rotated figure.
QUESTION 32

STRAND 3: GEOMETRY

Complete and Correct Response:

Score Points:

Apply 3-point holistic rubric
Brian drew a rectangle on the grid below. On the same grid, rotate the rectangle both 90° and 180° clockwise about the origin. Label point A from the rectangle Brian drew as A' on your 90° rotated figure and as A'' on your 180° rotated figure.

This response demonstrates a thorough understanding of the mathematical concepts embodied in the task.

Score Point - 3
This response is partially correct and addresses most aspects of the task, using mathematically sound procedures; however, the 90° rotation is counter-clockwise instead of clockwise.

Brian drew a rectangle on the grid below. On the same grid, rotate the rectangle both 90° and 180° clockwise about the origin. Label point A from the rectangle Brian drew as A' on your 90° rotated figure and as A'' on your 180° rotated figure.
Brian drew a rectangle on the grid below. On the same grid, rotate the rectangle both 90° and 180° clockwise about the origin. Label point A from the rectangle Brian drew as A' on your 90° rotated figure and as A'' on your 180° rotated figure.

This response demonstrates a limited understanding of the mathematical concepts embodied in the task. Although the 90° rotation of the rectangle is correct, the 180° rotation contains a procedural flaw by not holding the size constant. No labels are provided.

Score Point - 1
Brian drew a rectangle on the grid below. On the same grid, rotate the rectangle 90° and 180° clockwise about the origin. Label point $A$ from the rectangle Brian drew as $A'$ on your 90° rotated figure and as $A''$ on your 180° rotated figure.

This response is completely incorrect. The rectangle was translated instead of rotated.
Noel and Renaldo want to rent bikes with two other friends. They have $150 to spend on bike rentals. The sign below shows the bike rental rates.

**BIKE RENTALS**
- Rent 1 bike for $9.75 per hour.

**Special Group Rate**
- For groups of 4 or more, save $3.00 per person.

All rates include tax.

Based on the information on the sign, the equation below can be used to determine the number of hours, \( h \), the 4 friends can rent bikes with $150.

\[
4(9.75h - 3) = 150
\]

**Part A**

Noel says they have enough money to rent the bikes for a maximum of 3 hours. Solve the equation for the number of hours, \( h \), in order to determine whether Noel is correct.

*Show your work.*

**Answer** ____________ hours
Part B

On the lines below, explain whether Noel is correct.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Question 33

Strand 2: Algebra

Complete and Correct Response:

Part A

- \(39h - 12 = 150\)
  - \(39h = 162\)
  - \(h = 4.15\)

OR other valid process

AND

- 4 hours or 4.15 hours or 4 hours and 9 minutes

Part B

- Explanation that states Noel is incorrect and that they can rent bikes for four hours.

OR other valid explanation

Score Points:

Apply 3-point holistic rubric
Noel and Renaldo want to rent bikes with two other friends. They have $150 to spend on bike rentals. The sign below shows the bike rental rates.

**BIKE RENTALS**

- Rent 1 bike for $9.75 per hour.

**Special Group Rate**

- For groups of 4 or more, save $3.00 per person.

All rates include tax.

Based on the information on the sign, the equation below can be used to determine the number of hours, \( h \), the 4 friends can rent bikes with $150.

\[
4(9.75h - 3) = 150
\]

**Part A**

Noel says they have enough money to rent the bikes for a maximum of 3 hours. Solve the equation for the number of hours, \( h \), in order to determine whether Noel is correct.

**Show your work.**

\[
4(9.75h - 3) = 150 \\
(39h - 12) = 150 \\
39h - 12 = 150 \\
+12 +12 \\
39h = 162 \\
\frac{39}{39} \frac{162}{39} \\
h = 4.1538 \Rightarrow 4.15
\]

**Answer** 4.15 hours
Part B

On the lines below, explain whether Noel is correct.

She is not correct. With the money she has, they can ride for 4.15 hours.

This response is complete and correct.

Score Point - 3
Noel and Renaldo want to rent bikes with two other friends. They have $150 to spend on bike rentals. The sign below shows the bike rental rates.

**BIKE RENTALS**
- Rent 1 bike for $9.75 per hour.

**Special Group Rate**
- For groups of 4 or more, save $3.00 per person.

All rates include tax.

Based on the information on the sign, the equation below can be used to determine the number of hours, $h$, the 4 friends can rent bikes with $150.

$$4(9.75h - 3) = 150$$

**Part A**
Noel says they have enough money to rent the bikes for a maximum of 3 hours. Solve the equation for the number of hours, $h$, in order to determine whether Noel is correct.

**Show your work.**

$$4(9.75h - 3) = 150$$

$$39h - 12 = 150$$

$$39h = 162$$

$$h = 4.15$$

**Answer** 4.15 hours
Part B

On the lines below, explain whether Noel is correct.

He is correct because he could go for about 4 hours and 15 minutes.

---

This response is partially correct. The equation is solved for correctly, and the appropriate work is provided in Part A. However, in Part B, the explanation is incorrect and contains an incorrect conversion.

Score Point - 2
Noel and Renaldo want to rent bikes with two other friends. They have $150 to spend on bike rentals. The sign below shows the bike rental rates.

**BIKE RENTALS**
- Rent 1 bike for $9.75 per hour.

**Special Group Rate**
- For groups of 4 or more, save $3.00 per person.

All rates include tax.

Based on the information on the sign, the equation below can be used to determine the number of hours, $h$, the 4 friends can rent bikes with $150.

$$4(9.75h - 3) = 150$$

**Part A**

Noel says they have enough money to rent the bikes for a maximum of 3 hours. Solve the equation for the number of hours, $h$, in order to determine whether Noel is correct.

**Show your work.**

$$4(9.75h - 3) = 150$$
$$9.75h - 4 = 37$$
$$9.75h = 41$$
$$h = 4.21$$

**Answer** $5 \frac{1}{2}$ hours
No, Noel is not correct. You can rent 4 bikes for 5 hours for $150. It's $6.75 each taking the $3 discount. Then $6.75 times 4 = $27 for all 4 to go for an hour. Then $150 divided by 27 each is 5.5 = 5 and 1/2 hours.
Noel and Renaldo want to rent bikes with two other friends. They have $150 to spend on bike rentals. The sign below shows the bike rental rates.

**BIKE RENTALS**
- Rent 1 bike for $9.75 per hour.

**Special Group Rate**
- For groups of 4 or more, save $3.00 per person.

All rates include tax.

Based on the information on the sign, the equation below can be used to determine the number of hours, $h$, the 4 friends can rent bikes with $150.

$$4(9.75h - 3) = 150$$

**Part A**

Noel says they have enough money to rent the bikes for a maximum of 3 hours. Solve the equation for the number of hours, $h$, in order to determine whether Noel is correct.

**Show your work.**

$$4(9.75h - 3) = 150$$

$$4(9.75 \cdot 3 - 3) = 150$$

$$10.5 \times \frac{1}{4} = 150$$

Answer $\frac{125}{10.5}$ hours
Part B

On the lines below, explain whether Noel is correct.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

This response is incorrect. Although 3 is substituted for $h$ and solved correctly, holistically this is not sufficient to demonstrate even a limited understanding of the task.

Score Point - 0
Luisa works in her grandfather’s jewelry shop. She deposits her earnings in a savings account. Her savings account balances for five of the last six weeks are shown in the function table below.

<table>
<thead>
<tr>
<th>Week ( (w) )</th>
<th>Savings Balance ( (b) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$510</td>
</tr>
<tr>
<td>2</td>
<td>$620</td>
</tr>
<tr>
<td>3</td>
<td>$730</td>
</tr>
<tr>
<td>4</td>
<td>$840</td>
</tr>
<tr>
<td>5</td>
<td>$7</td>
</tr>
<tr>
<td>6</td>
<td>$1,060</td>
</tr>
</tbody>
</table>

**Part A**

According to the data in the function table, write a function rule that shows how much money Luisa saves each week.

**Rule**

**Part B**

Based on the table, how much money is in Luisa’s savings account in week 5?

**Answer** $
**QUESTION 34**

**STRAND 2: ALGEBRA**

*Complete and Correct Response:*

**Part A**

- \( b = 110w + 400 \)

OR other valid rule including a verbal description which can be written as an equation

**Part B**

- \$950.00

*Score Points:*

Apply 2-point holistic rubric
Luisa works in her grandfather's jewelry shop. She deposits her earnings in a savings account. Her savings account balances for five of the last six weeks are shown in the function table below.

**LUISA'S SAVINGS ACCOUNT**

<table>
<thead>
<tr>
<th>Week (w)</th>
<th>Savings Balance (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$510</td>
</tr>
<tr>
<td>2</td>
<td>$620</td>
</tr>
<tr>
<td>3</td>
<td>$730</td>
</tr>
<tr>
<td>4</td>
<td>$840</td>
</tr>
<tr>
<td>5</td>
<td>?</td>
</tr>
<tr>
<td>6</td>
<td>$1,060</td>
</tr>
</tbody>
</table>

**Part A**

According to the data in the function table, write a function rule that shows how much money Luisa saves each week.

Rule \[ b = 400 + 110w \]

**Part B**

Based on the table, how much money is in Luisa's savings account in week 5?

Answer $950

This response is complete and correct.

**Score Point - 2**
Luisa works in her grandfather's jewelry shop. She deposits her earnings in a savings account. Her savings account balances for five of the last six weeks are shown in the function table below.

**LUISA'S SAVINGS ACCOUNT**

<table>
<thead>
<tr>
<th>Week (w)</th>
<th>Savings Balance (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$510</td>
</tr>
<tr>
<td>2</td>
<td>$620</td>
</tr>
<tr>
<td>3</td>
<td>$730</td>
</tr>
<tr>
<td>4</td>
<td>$840</td>
</tr>
<tr>
<td>5</td>
<td>?</td>
</tr>
<tr>
<td>6</td>
<td>$1,060</td>
</tr>
</tbody>
</table>

**Part A**

According to the data in the function table, write a function rule that shows how much money Luisa saves each week.

Rule: She adds $110 each week.

**Part B**

Based on the table, how much money is in Luisa’s savings account in week 5?

Answer: $950

This response is only partially correct. Although the answer in Part B is correct, an appropriate function rule is not provided in Part A.

Score Point - 1
Luisa works in her grandfather’s jewelry shop. She deposits her earnings in a savings account. Her savings account balances for five of the last six weeks are shown in the function table below.

LUISA’S SAVINGS ACCOUNT

<table>
<thead>
<tr>
<th>Week (w)</th>
<th>Savings Balance (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$510</td>
</tr>
<tr>
<td>2</td>
<td>$620</td>
</tr>
<tr>
<td>3</td>
<td>$730</td>
</tr>
<tr>
<td>4</td>
<td>$840</td>
</tr>
<tr>
<td>5</td>
<td>?</td>
</tr>
<tr>
<td>6</td>
<td>$1,060</td>
</tr>
</tbody>
</table>

**Part A**

According to the data in the function table, write a function rule that shows how much money Luisa saves each week.

**Rule**

It goes by 10

**Part B**

Based on the table, how much money is in Luisa’s savings account in week 5?

**Answer** $940

This response is completely incorrect.

**Score Point - 0**
On the grid below, draw the image of pentagon ABCDE with center at the origin after a dilation of 3. Label the image A'B'C'D'E'.
QUESTION 35

STRAND 3: GEOMETRY

Complete and Correct Response:

![Graph with labeled points A, B, C, D, E, A', B', C', D', E']

Score Points:

Apply 2-point holistic rubric
On the grid below, draw the image of pentagon ABCDE with center at the origin after a dilation of 3. Label the image A'B'C'D'E'.

This response demonstrates a thorough understanding of the mathematical concepts embodied in the task.

Score Point - 2
On the grid below, draw the image of pentagon ABCDE with center at the origin after a dilation of 3. Label the image A'B'C'D'E'.

This response contains an incorrect solution but applies a mathematically appropriate process. An incorrect scale factor is applied. However, the image is labeled and drawn correctly.

Score Point - 1
On the grid below, draw the image of pentagon ABCDE with center at the origin after a dilation of 3. Label the image A'B'C'D'E'.
Tracy's dog eats 8 ounces of dog food every day. How many pounds of dog food will her dog eat in 40 days?

*Show your work.*

*Answer* ___________ pounds
**Question 36**

**Strand 4: Measurement**

*Complete and Correct Response:*

- $8 \times 40 = 320$
  
  $320 \div 16 = 20$ pounds

OR other valid process

**AND**

- 20 pounds

*Score Points:*

Apply 2-point holistic rubric
Tracy's dog eats 8 ounces of dog food every day. How many pounds of dog food will her dog eat in 40 days?

Show your work.

Answer 20 pounds

This response is complete and correct.

Score Point - 2
Tracy’s dog eats 8 ounces of dog food every day. How many pounds of dog food will her dog eat in 40 days?

Show your work.

\[
\begin{align*}
40 & \times 8 \\
\hline
320 & \\
\div 12 & = 26.6666666667
\end{align*}
\]

Answer \(26.6\) pounds

This response demonstrates only a partial understanding of the mathematical concepts embodied in the task. The work shown is flawed in that the total number of ounces is divided by 12 and not 16.

Score Point - 1
Tracy's dog eats 8 ounces of dog food every day. How many pounds of dog food will her dog eat in 40 days?

Show your work.

\[
\begin{align*}
\text{8 ounces} & \times \text{7 days} \\
& = 56 \text{ ounces a week} \\
& \times 40 \\
& = 2240 \text{ lbs}
\end{align*}
\]

Answer: 2240 pounds

This response is completely incorrect.

Score Point - 0
In the figure below, $\overline{DC}$ intersects $\overrightarrow{BA}$ at point $B$.

What is the measure, in degrees, of $\angle ABC$?

*Show your work.*

*Answer*  |  degrees
QUESTION 37

STRAND 2: ALGEBRA

*Complete and Correct Response:*

- $16x + 60 + 8x = 180$
- $24x + 60 = 180$
- $24x = 120$
- $x = 5$

Substitute: $\angle ABC = 8x = 8 \times 5 = 40$.

OR other valid process

AND

- 40 degrees

*Score Points:*

Apply 3-point holistic rubric
In the figure below, $\overline{DC}$ intersects $\overrightarrow{BA}$ at point $B$.

What is the measure, in degrees, of $\angle ABC$?

**Show your work.**

\[
(16x + 60)^\circ + (8x) = 180^\circ
\]

\[
24x + 60 = 180
\]

\[
24x = 120
\]

\[
x = 5
\]

**Answer** 40 degrees

8 $\cdot 5 = 40$

This response demonstrates a thorough understanding of the task.

**Score Point - 3**
In the figure below, $\overline{DC}$ intersects $\overrightarrow{BA}$ at point $B$.

![Diagram of intersecting lines with angles labeled as $(16x + 60)^\circ$ and $(8x)^\circ$.]

What is the measure, in degrees, of $\angle ABC$?

**Show your work.**

\[
\begin{align*}
16x + 60 + 8x &= 180^\circ \\
24x + 60 &= 180^\circ \\
24x &= 120^\circ \\
x &= 5^\circ
\end{align*}
\]

**Answer** $5^\circ$ degrees

This response addresses most aspects of the task correctly. The angles are set up as supplementary and the equation is solved correctly. However, the final step of solving for $8x$ is missing.

**Score Point - 2**
In the figure below, \( \overline{DC} \) intersects \( \overrightarrow{BA} \) at point \( B \).

What is the measure, in degrees, of \( \angle ABC \)?

**Show your work.**

\[
16(x) + 60^\circ = 140^\circ \\
180^\circ - 140^\circ = 40^\circ \\
8(x) = 40^\circ
\]

**Answer** \( 40^\circ \) degrees

This response is incomplete. The answer is arrived at using only one trial.

**Score Point - 1**
In the figure below, \( \overline{DC} \) intersects \( \overrightarrow{BA} \) at point \( B \).

What is the measure, in degrees, of \( \angle ABC \)?

**Show your work.**

**Answer** \( 42^\circ \) degrees

This response is completely incorrect.

**Score Point - 0**
Shane uses a grid to decide how to arrange his living room furniture. The shape and position of Shane's sofa are shown on the grid below. He moves the sofa 4 units to the right and 2 units up. On the grid below, draw the new location of Shane's sofa.
**Question 38**

**Strand 3: Geometry**

*Complete and Correct Response:*

![Graph](image)

*Score Points:*

Apply 2-point holistic rubric
Shane uses a grid to decide how to arrange his living room furniture. The shape and position of Shane's sofa are shown on the grid below. He moves the sofa 4 units to the right and 2 units up. On the grid below, draw the new location of Shane's sofa.

This response is complete and correct.

Score Point - 2
Shane uses a grid to decide how to arrange his living room furniture. The shape and position of Shane's sofa are shown on the grid below. He moves the sofa 4 units to the right and 2 units up. On the grid below, draw the new location of Shane's sofa.

This response addresses some elements of the task correctly. However, the final location of the shape is incorrect.

Score Point - 1
Shane uses a grid to decide how to arrange his living room furniture. The shape and position of Shane's sofa are shown on the grid below. He moves the sofa 4 units to the right and 2 units up. On the grid below, draw the new location of Shane's sofa.

This response is completely incorrect. The figure is reflected instead of translated.

Score Point - 0
Juanita solved an equation incorrectly, as shown below.

\[ 3x + 6 = 24 \]

\[ \frac{3x}{3} + \frac{6}{3} = \frac{24}{3} \]

\[ x + 2 = 8 \]

\[ x = 2 \]

**Part A**

On the lines below, explain in words the mistake Juanita made.

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

**Part B**

Solve the equation \( 3x + 6 = 24 \) correctly.

*Show your work.*

Answer _______________
**Question 39**

**Strand 2: Algebra**

**Complete and Correct Response:**

**Part A**

- Explanation equivalent to the following:
  
  Juanita should have divided the 6 by 3 also.

  OR

  Juanita should have subtracted 6 from both sides of the equation before dividing by 3.

  OR other valid response

**AND**

**Part B**

- Work equivalent to the following:
  
  \[3x + 6 = 24\]
  
  \[x + 2 = 8\]
  
  \[x = 6\]

  OR

  \[3x + 6 = 24\]
  
  \[3x = 18\]
  
  \[x = 6\]

  OR other valid process

**AND**

- \(x = 6\)

**Score points:**

Apply 3-point holistic rubric
Juanita solved an equation incorrectly, as shown below.

\[ 3x + 6 = 24 \]
\[ \frac{3x}{3} + \frac{6}{3} = \frac{24}{3} \]
\[ x + 2 = 8 \]
\[ x = 2 \]

**Part A**

On the lines below, explain in words the mistake Juanita made.

*did not divide 6 by 3*

**Part B**

Solve the equation \( 3x + 6 = 24 \) correctly.

*Show your work.*

\[ \frac{3x}{3} + \frac{6}{3} = \frac{24}{3} \]
\[ x + 2 = 8 \]
\[ -2 \]
\[ x = 6 \]

*Answer* 6

This response is complete and correct.

**Score Point - 3**
Juanita solved an equation incorrectly, as shown below.

\[ 3x + 6 = 24 \]
\[ \frac{3x}{3} + \frac{6}{3} = \frac{24}{3} \]
\[ x + 6 = 8 \]
\[ x = 2 \]

**Part A**

On the lines below, explain in words the mistake Juanita made.

She didn't subtract 6 from both sides. Then divide by 3

**Part B**

Solve the equation \( 3x + 6 = 24 \) correctly.

Show your work.

\[
\begin{align*}
3x + 6 &= 24 \\
-6 &= -16 \\
3x &= 8 \\
\frac{x}{3} &= \frac{8}{3}
\end{align*}
\]

Answer \( \frac{8}{3} \)

This response addresses most aspects of the task using mathematically sound procedures. Part A is correct. However, a transcription error is made in Part B when subtracting 6 from both sides of the equation, resulting in an incorrect answer.

Score Point - 2
39 Juanita solved an equation incorrectly, as shown below.

\[ 3x + 6 = 24 \]
\[ \frac{2x}{3} + 6 = \frac{24}{3} \]
\[ x + 6 = 8 \]
\[ x = 2 \]

**Part A**

On the lines below, explain in words the mistake Juanita made.

She did it wrong

**Part B**

Solve the equation \(3x + 6 = 24\) correctly.

**Show your work.**

\[
\begin{align*}
\frac{3x}{3} + \frac{6}{3} &= \frac{24}{3} \\
x + 2 &= 8 \\
x &= 10
\end{align*}
\]

**Answer** 
10

This response demonstrates only a limited understanding of the mathematical concepts and procedures embodied in the task. Part A is incorrect. In Part B an error is made when 2 is added to 8 instead of subtracted from 8.

**Score Point - 1**
Juanita solved an equation incorrectly, as shown below.

\[ 3x + 6 = 24 \]
\[ \frac{3x}{3} + 6 = \frac{24}{3} \]
\[ x + 6 = 8 \]
\[ x = 2 \]

**Part A**

On the lines below, explain in words the mistake Juanita made.

_She didn't add 6 to 8._

**Part B**

Solve the equation \( 3x + 6 = 24 \) correctly.

_Show your work._

\[ x = 8 + 6 \]

**Answer** 14

This response is completely incorrect.

**Score Point - 0**
Xavier bought a shirt that was on sale for 20% off the original price. He also used a coupon that gave him an additional 15% off the sale price of the shirt. The original price of the shirt was $37. What is the new price of the shirt before tax?

*Show your work.*

*Answer $ \underline{\hspace{2cm}}$*
**QUESTION 40**

**STRAND 1: NUMBER SENSE AND OPERATIONS**

*Complete and Correct Response:*

- $37.00 \times .20 = $7.40
  
  $37.00 - $7.40 = $29.60

- $29.60 \times .15 = $4.44
  
  $29.60 - $4.44 = $25.16

OR other valid process

**AND**

- $25.16

*Score Points:*

Apply 2-point holistic rubric
Xavier bought a shirt that was on sale for 20% off the original price. He also used a coupon that gave him an additional 15% off the sale price of the shirt. The original price of the shirt was $37. What is the new price of the shirt before tax?

Show your work.

\[
\begin{array}{c}
\text{Original Price: } \$37 \\
\text{Sale Price: } \$29.60 \\
\text{After Coupon: } \$29.60 \\
\text{After Additional Discount: } \$25.16
\end{array}
\]

Answer $25.16

This response demonstrates a thorough understanding of the mathematical concepts embodied in the task.

Score Point - 2
Score Point - 1

Xavier bought a shirt that was on sale for 20% off the original price. He also used a coupon that gave him an additional 15% off the sale price of the shirt. The original price of the shirt was $37. What is the new price of the shirt before tax?

Show your work.

\[
\begin{align*}
37 & \quad \quad \quad 20 \\
+15 & \quad \quad \quad +15 \\
\hline 
35\% & \\
\end{align*}
\]

\[
\begin{align*}
12.95 & \quad \quad \quad 37.00 \\
\times.35 & \quad \quad \quad -12.95 \\
\hline 
24.05 & \\
\end{align*}
\]

Answer: $24.05

This response demonstrates only a partial understanding of the mathematical procedures embodied in the task. The first step of the procedure is incorrect in that the 20% and 15% discounts are added to equal 35%. Although the student computes the total of the two discounts incorrectly, the final step of subtracting the total discount from the original price of the shirt is correct.
Xavier bought a shirt that was on sale for 20% off the original price. He also used a coupon that gave him an additional 15% off the sale price of the shirt. The original price of the shirt was $37. What is the new price of the shirt before tax?

Show your work.

\[
\begin{align*}
37 & \times 0.20 \\
7.40 & \\
37 & \times 0.15 \\
11.05 & \\
\end{align*}
\]

Answer $11.05$

This response is incorrect. Although the first step is the beginning of a correct mathematical procedure, holistically it is not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

Score Point - 0
The figure below shows parallel lines cut by a transversal.

[not drawn to scale]

**Part A**

Based on the information in the figure, complete the table below with the measures for each angle.

<table>
<thead>
<tr>
<th>Angle</th>
<th>$a^\circ$</th>
<th>$b^\circ$</th>
<th>$d^\circ$</th>
<th>$w^\circ$</th>
<th>$x^\circ$</th>
<th>$y^\circ$</th>
<th>$z^\circ$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Measure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part B**

Name one pair of supplementary angles in the figure.

*Answer* ____________________________
QUESTION 41

STRAND 3: GEOMETRY

*Complete and Correct Response:*

*Part A*

<table>
<thead>
<tr>
<th>Angle</th>
<th>$a^\circ$</th>
<th>$b^\circ$</th>
<th>$d^\circ$</th>
<th>$w^\circ$</th>
<th>$x^\circ$</th>
<th>$y^\circ$</th>
<th>$z^\circ$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Measure</td>
<td>51°</td>
<td>129°</td>
<td>129°</td>
<td>129°</td>
<td>51°</td>
<td>129°</td>
<td>51°</td>
</tr>
</tbody>
</table>

*Part B*

- $\angle a$ and $\angle b$

OR other valid pair of supplementary angles

*Score Points:*

Apply 3-point holistic rubric
41 The figure below shows parallel lines cut by a transversal.

![Diagram of parallel lines cut by a transversal with angles labeled]

[not drawn to scale]

**Part A**

Based on the information in the figure, complete the table below with the measures for each angle.

<table>
<thead>
<tr>
<th>Angle</th>
<th>$a^\circ$</th>
<th>$b^\circ$</th>
<th>$d^\circ$</th>
<th>$w^\circ$</th>
<th>$x^\circ$</th>
<th>$y^\circ$</th>
<th>$z^\circ$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Measure</td>
<td>51°</td>
<td>129°</td>
<td>129°</td>
<td>129°</td>
<td>51°</td>
<td>129°</td>
<td>51°</td>
</tr>
</tbody>
</table>

$\frac{180}{51} = \frac{129}{129}$

**Part B**

Name one pair of supplementary angles in the figure.

Answer: angle $a^\circ + angle b^\circ$

This response is complete and correct.

**Score Point - 3**
The figure below shows parallel lines cut by a transversal.

Part A

Based on the information in the figure, complete the table below with the measures for each angle.

<table>
<thead>
<tr>
<th>Angle</th>
<th>$a^\circ$</th>
<th>$b^\circ$</th>
<th>$d^\circ$</th>
<th>$w^\circ$</th>
<th>$x^\circ$</th>
<th>$y^\circ$</th>
<th>$z^\circ$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Measure</td>
<td>51$^\circ$</td>
<td>129$^\circ$</td>
<td>129$^\circ$</td>
<td>51$^\circ$</td>
<td>129$^\circ$</td>
<td>51$^\circ$</td>
<td>129$^\circ$</td>
</tr>
</tbody>
</table>

Part B

Name one pair of supplementary angles in the figure.

Answer $x$ and $y$ (129$^\circ$ and 51$^\circ$)

This response is partially correct. Although Part A has some errors, knowledge of supplementary angles is shown when angle measures of 129$^\circ$ and 51$^\circ$ are used in the table. The answer in Part B is correct.

Score Point - 2
The figure below shows parallel lines cut by a transversal.

Part A

Based on the information in the figure, complete the table below with the measures for each angle.

<table>
<thead>
<tr>
<th>Angle</th>
<th>a°</th>
<th>b°</th>
<th>c°</th>
<th>d°</th>
<th>w°</th>
<th>x°</th>
<th>y°</th>
<th>z°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Measure</td>
<td>51°</td>
<td>80°</td>
<td>180°</td>
<td>92°</td>
<td>51°</td>
<td>80°</td>
<td>51°</td>
<td></td>
</tr>
</tbody>
</table>

Part B

Name one pair of supplementary angles in the figure.

Answer $X, Z$

This response exhibits multiple flaws, but is not completely incorrect. The measures of angles $a, x,$ and $z$ are correct in the table showing an understanding of vertical and alternate interior angles. However, the student demonstrates no understanding of supplementary angles.

Score Point - 1
The figure below shows parallel lines cut by a transversal.

Part A

Based on the information in the figure, complete the table below with the measures for each angle.

<table>
<thead>
<tr>
<th>Angle</th>
<th>$a^\circ$</th>
<th>$b^\circ$</th>
<th>$d^\circ$</th>
<th>$w^\circ$</th>
<th>$x^\circ$</th>
<th>$y^\circ$</th>
<th>$z^\circ$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Measure</td>
<td>51</td>
<td>110</td>
<td>110</td>
<td>110</td>
<td>51</td>
<td>51</td>
<td></td>
</tr>
</tbody>
</table>

Part B

Name one pair of supplementary angles in the figure.

Answer

This response is incorrect. Although the measures of angles $a$ and $z$ are correct, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

Score Point - 0
Write an equation that represents "eight less than twice a number is forty-two."

\[ \text{Equation} \] 

Solve the equation.

\[ \text{Show your work.} \]

\[ \text{Answer} \]
QUESTION 42

STRAND 2: ALGEBRA

Complete and Correct Response:

- \[ 2n - 8 = 42 \]

AND

- \[ 2n - 8 = 42 \]
- \[ 2n = 50 \]
- \[ n = 25 \]

OR other valid process

AND

- 25

Score Points:

Apply 2-point holistic rubric
Write an equation that represents “eight less than twice a number is forty-two.”

**Equation**  \[2x - 8 = 42\]

Solve the equation.

**Show your work.**

\[
\begin{align*}
2x - 8 &= 42 \\
+8 &+8 \\
\hline
2x &= 50 \\
\div2 &\div2 \\
x &= 25
\end{align*}
\]

**Answer** \[x = 25\]
Write an equation that represents “eight less than twice a number is forty-two.”

Equation $2n - 8 = 42$

Solve the equation.

Show your work.

$2n - 8 = 42$

$\frac{-8 - 8}{8} \frac{2n}{2} \frac{34}{2}$

$n = 17$

Answer $n = 17$

This response addresses some elements of the task correctly but contains some procedural flaws. The proper equation is given, but in solving the equation, 8 is subtracted from both sides of the equation rather than added, resulting in an incorrect answer.

Score Point - 1
Write an equation that represents “eight less than twice a number is forty-two.”

Equation \[ 8 - 2x = 42 \]

Solve the equation.

Show your work.

\[
\begin{align*}
8 - 2x &= 42 \\
\frac{8 - 42}{2x} &= \frac{2}{2} \\
-x &= 21
\end{align*}
\]

Answer \[21\]

This response is completely incorrect.

Score Point - 0
Bryce drew the four angles shown below.

![Diagram of four angles with measurements: 59°, 119°, 61°, and 31°]

**Part A**

Which pair of angles are complementary? _______________________

Which pair of angles are supplementary? _______________________

**Part B**

On the lines below, explain how you determined your answers.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
**Question 43**

**Strand 3: Geometry**

*Complete and Correct Response:*

**Part A**
- Complementary Angles A & D
- Supplementary Angles B & C

**Part B**
- These angle pairs are correct because complementary angles add up to 90° and supplementary angles add up to 180°. Angle A (59°) + Angle D (31°) = 90°. Angle B (119°) + Angle C (61°) = 180°.

OR other valid explanation

*Score Points:*

Apply 2-point holistic rubric
Bryce drew the four angles shown below.

Part A
Which pair of angles are complementary? $A + D$
Which pair of angles are supplementary? $B + C$

Part B
On the lines below, explain how you determined your answers.

For complementary: $59^\circ + 31^\circ = 90^\circ$

For supplementary: $119^\circ + 61^\circ = 180^\circ$

This response demonstrates a thorough understanding of the mathematical concepts embodied in the task.

Score Point - 2
Bryce drew the four angles shown below.

Part A
Which pair of angles are complementary? A and D
Which pair of angles are supplementary? B and C

Part B
On the lines below, explain how you determined your answers.

Well a complementary angle is 90° and a supplementary angle is 180°
So A and D are closer to 180°
and B & C are closer to 90°.

This response demonstrates only a partial understanding of the mathematical concepts embodied in the task. Part A is answered correctly. However, the explanation in Part B is flawed in that it refers to complementary and supplementary as single angles versus the addition of two angles.

Score Point - 1
Bryce drew the four angles shown below.

Part A

Which pair of angles are complementary? A, C, D

Which pair of angles are supplementary? B

Part B

On the lines below, explain how you determined your answers.

Because supplementary means that each angle equals 180.
And complementary equals 90.
Supplementary angles are usually obtuse angles & complementary angles are usually acute.

This response is completely incorrect. In Part A, the angles are not properly paired. The explanation in Part B is flawed in identifying supplementary and complementary angles as single angles.

Score Point - 0
Brian and Steve want to compare the prices of their favorite cereals to determine which is less expensive. The table below shows the price of each box of cereal and the number of ounces in each box.

<table>
<thead>
<tr>
<th>BOXES OF CEREAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Total Weight (in ounces)</td>
</tr>
<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Brian's Cereal</td>
</tr>
<tr>
<td>Steve's Cereal</td>
</tr>
</tbody>
</table>

**Part A**

Complete the table above by calculating the price per ounce of each kind of cereal.

**Part B**

Whose cereal is less expensive per ounce?

*Show your work.*

*Answer ____________________________*
QUESTION 44

STRAND 4: MEASUREMENT

Complete and Correct Response:

Part A

<table>
<thead>
<tr>
<th>BOXES OF CEREAL</th>
<th>Total Weight (in ounces)</th>
<th>Total Price (per box)</th>
<th>Price (per ounce)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian’s Cereal</td>
<td>24 oz.</td>
<td>$3.84</td>
<td>$0.16</td>
</tr>
<tr>
<td>Steve’s Cereal</td>
<td>32 oz.</td>
<td>$4.48</td>
<td>$0.14</td>
</tr>
</tbody>
</table>

Part B

- Brian’s unit price:
  \[ \frac{24 \text{ oz}}{3.84} = \frac{1 \text{ oz}}{x} \];
  \[ 24 \text{ oz} \cdot x = 3.84; x = 3.84 \div 24 \text{ oz.} = 0.16 \text{ per oz.} \]

  Steve’s unit price:
  \[ \frac{32 \text{ oz}}{4.48} = \frac{1 \text{ oz}}{x} \];
  \[ 32 \text{ oz} \cdot x = 4.48; x = 4.48 \div 32 \text{ oz.} = 0.14 \text{ per oz.} \]

OR

- Brian’s cereal: \[ \frac{3.84}{24} \text{ oz.} = 0.16 \text{ per oz.} \]

  Steve’s cereal: \[ \frac{4.48}{32} \text{ oz.} = 0.14 \text{ per oz.} \]

OR other valid process

AND

- Steve’s cereal

Score Points:

Apply 2-point holistic rubric
Brian and Steve want to compare the prices of their favorite cereals to determine which is less expensive. The table below shows the price of each box of cereal and the number of ounces in each box.

**BOXES OF CEREAL**

<table>
<thead>
<tr>
<th></th>
<th>Total Weight (in ounces)</th>
<th>Total Price (per box)</th>
<th>Price (per ounce)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian’s Cereal</td>
<td>24 oz.</td>
<td>$3.84</td>
<td>$ .16</td>
</tr>
<tr>
<td>Steve’s Cereal</td>
<td>32 oz.</td>
<td>$4.48</td>
<td>$ .14</td>
</tr>
</tbody>
</table>

**Part A**

Complete the table above by calculating the price per ounce of each kind of cereal.

**Part B**

Whose cereal is less expensive per ounce?

*Show your work.*

\[
\begin{align*}
24 & \div 3.84 \quad 32 \div 4.48 \\
\quad 7 & \quad 7
\end{align*}
\]

Brian's  
Steve's

*Answer* Steve's

This response is complete and correct.

**Score Point - 2**
Brian and Steve want to compare the prices of their favorite cereals to determine which is less expensive. The table below shows the price of each box of cereal and the number of ounces in each box.

## BOXES OF CEREAL

<table>
<thead>
<tr>
<th></th>
<th>Total Weight (in ounces)</th>
<th>Total Price (per box)</th>
<th>Price (per ounce)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian’s Cereal</td>
<td>24 oz.</td>
<td>$3.84</td>
<td>.16¢</td>
</tr>
<tr>
<td>Steve’s Cereal</td>
<td>32 oz.</td>
<td>$4.48</td>
<td>.14¢</td>
</tr>
</tbody>
</table>

**Part A**

Complete the table above by calculating the price per ounce of each kind of cereal.

**Part B**

Whose cereal is less expensive per ounce?

*Show your work.*

![Math work]

Answer: Steve’s

This response is only partially correct. The correct mathematical process is shown for solving the problem and the correct response is written in the answer blank. However, an invalid representation of 14 and 16 cents is shown in the table.

**Score Point - 1**
Brian and Steve want to compare the prices of their favorite cereals to determine which is less expensive. The table below shows the price of each box of cereal and the number of ounces in each box.

<table>
<thead>
<tr>
<th>BOXES OF CEREAL</th>
<th>Total Weight (in ounces)</th>
<th>Total Price (per box)</th>
<th>Price (per ounce)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brian's Cereal</td>
<td>24 oz.</td>
<td>$3.84</td>
<td>$0.16</td>
</tr>
<tr>
<td>Steve's Cereal</td>
<td>32 oz.</td>
<td>$4.48</td>
<td>$0.14</td>
</tr>
</tbody>
</table>

**Part A**

Complete the table above by calculating the price per ounce of each kind of cereal.

**Part B**

Whose cereal is less expensive per ounce?

*Show your work.*

Brian: \( \frac{3.84}{24} = 0.16 \)  
Steve: \( \frac{4.48}{32} = 0.14 \)

**Answer** Brian's cereal

This response is completely incorrect.

**Score Point - 0**
In the figure below, lines $k$ and $n$ are parallel. Line $l$ is a transversal.

[not drawn to scale]

**Part A**

What is the value of $x$?

*Show your work.*

*Answer  __________________________*
**Part B**

What is the measure, in degrees, of $\angle A$?

*Show your work.*

**Answer** __________ degrees

**Part C**

What is the measure, in degrees, of $\angle B$?

*Show your work.*

**Answer** __________ degrees
**Question 45**

**Strand 2: Algebra**

*Complete and Correct Response:*

**Part A**

- $7x = 2x + 35$
  
  $5x = 35$
  
  $x = 7$

OR other valid process

**AND**

**Part B**

- $\angle A = 7x$
  
  $\angle A = 7 \cdot 7$
  
  $\angle A = 49$
  
  49 degrees

OR other valid process

**AND**

**Part C**

- $\angle B = 180 - \angle A$
  
  $\angle B = 180 - 49$
  
  $\angle B = 131$
  
  131 degrees

OR other valid process

*Score Points:*

Apply 3-point holistic rubric
In the figure below, lines $k$ and $n$ are parallel. Line $l$ is a transversal.

Part A
What is the value of $x$?

Show your work.

\[7x = 2x + 35\]
\[-2x = -2\]
\[5x = 35\]
\[x = 7\]

Answer $x = 7$
Part B
What is the measure, in degrees, of $\angle A$?

Show your work.
\[ A = 2x + 35 \]
\[ A = 2(7) + 35 \]
\[ A = 14 + 35 \]
\[ A = 49^\circ \]

Answer $A = 49^\circ$ degrees

Part C
What is the measure, in degrees, of $\angle B$?

Show your work.
\[ B = 180 - 7x \]
\[ B = 180 - 7(7) \]
\[ B = 180 - 49 \]
\[ B = 131 \]

Answer $131$ degrees

This response is complete and correct.

Score Point - 3
In the figure below, lines $k$ and $n$ are parallel. Line $l$ is a transversal.

Part A

What is the value of $x$?

Show your work.

\[ 7x = 2x + 35 \]

\[ 7x - 2x = 35 \]

\[ 5x = 35 \]

\[ x = \frac{35}{5} \]

\[ 7 = x \]

Answer: $7 = x$
Part B

What is the measure, in degrees, of $\angle A$?

Show your work.

\[ 7x = 7 \times 7 = 49 \]

\[ 180 \]

\[ 49 \]

\[ 131 \]

Answer $131^\circ$ degrees

Part C

What is the measure, in degrees, of $\angle B$?

Show your work.

\[ 7x = 7 \times 7 = 49 \]

\[ 180 \]

\[ 49 \]

\[ 131 \]

Answer $131^\circ$ degrees

This response demonstrates partial understanding of the mathematical procedures and concepts embodied in the task. Parts A and C are correct. In Part B, the answer found for $x$ in Part A is substituted in the equation. However, the $49^\circ$ is then subtracted from $180^\circ$, therefore arriving at an incorrect answer.

Score Point - 2
In the figure below, lines \( k \) and \( n \) are parallel. Line \( l \) is a transversal.

[not drawn to scale]

**Part A**

What is the value of \( x \)?

*Show your work.*

\[
7x = 19 \\
2x = 14 + 35 \\
x = 49
\]

*Answer* 7
**Part B**

What is the measure, in degrees, of $\angle A$?

**Show your work.**

\[
\begin{align*}
2.7 + 35 &= 37.7 \\
14 + 35 &= 49
\end{align*}
\]

**Answer** 49 degrees

**Part C**

What is the measure, in degrees, of $\angle B$?

**Show your work.**

\[
\begin{align*}
149 + 49 &= 198 \\
180 + 98 &= 278
\end{align*}
\]

**Answer** 82 degrees

This response demonstrates only a limited understanding of the mathematical concepts embodied in the task. The method of guess-and-check is used in Part A without a sufficient number of attempts. Part B is correct. Part C is incorrect.

**Score Point - 1**
In the figure below, lines \( k \) and \( n \) are parallel. Line \( l \) is a transversal.

![Diagram showing parallel lines and a transversal with angles labeled.]

[not drawn to scale]

**Part A**

What is the value of \( x \)?

**Show your work.**

\[
\begin{align*}
(2x + 35) & \quad 37^\circ \\
37 & \quad \frac{5.2}{37}
\end{align*}
\]

*Answer* \( 5.2 \)
Part B

What is the measure, in degrees, of \( \angle A \)?

Show your work.

\[
\angle A \text{ less than } (2x + 35)
\]

Answer \( 37^\circ \) degrees

Part C

What is the measure, in degrees, of \( \angle B \)?

Show your work.

\[
\angle B \text{ less than } (7x^\circ)
\]

Answer \( 7x \) degrees

This response is completely incorrect.

Score Point - 0