A representative sample of 50 students from a high school is surveyed. Each student is asked what science or she is taking.

This table shows the responses:

<table>
<thead>
<tr>
<th>Science Class</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>6</td>
</tr>
<tr>
<td>Chemistry</td>
<td>10</td>
</tr>
<tr>
<td>Biology</td>
<td>18</td>
</tr>
<tr>
<td>Earth Science</td>
<td>4</td>
</tr>
<tr>
<td>Health Science</td>
<td>12</td>
</tr>
</tbody>
</table>

Click in the True or False column to identify whether each statement is valid based on the survey results.

<table>
<thead>
<tr>
<th>Based on the representative sample</th>
<th>True</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>Twice as many students are taking Health Science than are taking Physics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20% of students at the high school are taking Chemistry.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a group of 25 students, it is expected that 4 of the students are taking Earth Science.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a group of 150 students, it is expected that 18 of the students are taking Physics.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For this item, a full-credit response (2 point) includes:

- true
  AND
- true
  AND
- false
  AND
- true

For partial credit (1 point), the student correctly checks any 3 out of the 4 correct boxes.
For this item, a full-credit response (1 point) includes:

- “Landing on a 1”, “Landing on a 3”, and “Landing on a 4” in the “Probability Less than $\frac{1}{3}$” column

  AND

- “Landing on a 2” in the “Probability Greater than $\frac{1}{3}$” column
For this item, a full-credit response (3 point) includes:

- “Multiply $455 by 1.20” and “Solve for x: \( \frac{x}{455} = \frac{120}{100} \) in the “Finds new wage rate” column

AND

- “Divide $455 by 0.20”, “Divide $455 by 1.20”, “Multiply $455 by 0.20”, and “Solve for x: \( \frac{455}{x} = \frac{20}{100} \)” in the “Does not find new wage rate” column

For partial credit, the student

- correctly places 5 out of 6 responses (2 point)

OR

- correctly places 4 out of 6 responses (1 point)
Consider the equation.

Identify two expressions that are equivalent to \( w \) and drag each of them to an answer box.

\[ 3(4v + 1) - 3(2v + 3) = 2(v - 7) + w \]

\( w = \) [ ] = [ ]

<table>
<thead>
<tr>
<th>4v + 8</th>
<th>-v + 9</th>
<th>8v - 20</th>
<th>6(v - 1)</th>
<th>-1(v - 9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4v - 28</td>
<td>6v - 6</td>
<td>4(v + 2)</td>
<td>4(v - 7)</td>
<td>4(2v - 5)</td>
</tr>
</tbody>
</table>

For this item, a full-credit response (2 point) includes:

- 4v + 8
  AND
- 4(v + 2)

For partial credit, the student completes each task for 1 point each.
The full-credit (2 point) response includes:

- \(-a \cdot -b = c\)
  AND
- \(-a \cdot b = c\) OR \(a \cdot -b = c\)
  AND
- \(-c \\ = a\)
  AND
- \(c \\ = -a\) OR \(-c \\ = -a\)

For partial credit (1 point), the student correctly completes two equations.
For this item, a full-credit response (2 point) includes:

- any fraction where the denominator is greater than the numerator
  AND
- any fractions where the numerator is greater than or equal to the denominator

For partial credit, the student completes each task for 1 point each.

For example,

- \( \frac{1}{2} \)
  AND
- \( \frac{2}{1} \)
A treadmill counts each \(\frac{1}{4}\) mile run as one lap. The display on the treadmill shows the total number of laps run and highlights the portion of the current lap that has been completed.

A. What is the total distance run for the display shown? Drag one number into each box.

B. Create a display that shows a total of \(\frac{17}{16}\) miles run.

- Drag one number into the box to show the number of \(\frac{1}{4}\) mile laps that were completed.
- Click one section or more sections of the display to show how much of the current \(\frac{3}{4}\) mile lap has been completed.

For this item, a full-credit response (2 point) includes:

- \(\frac{7}{8}\)
- AND
- 4 laps completed with the first 2 sections shaded

For partial credit, the student completes each task for 1 point each.
Tim makes 80 gallons of paint by mixing 48 gallons of green paint with 32 gallons of blue paint.

What part of every gallon is from green paint?

The model represents 1 gallon of mixed paint.

Select the bars to show how much of the gallon is from green paint.

For this item, a full-credit response (1 point) includes:

- 0.6 gallon of green paint
For this item, a full-credit response (3 points) includes:

- \((x - 4)\)
  AND
- \((-4 + 4x)\)
  AND
- \((-4x - 4)\)

For partial credit, the student completes each equation for 1 point each.
For this item, a full-credit response (3 point) includes:

- \( p + 88 = 216 \)
  AND
- 7 boxes of nails
  AND
- 5 posts placed 8 feet apart

For partial credit, the student completes each task for 1 point each.
For this item, a full-credit response (2 point) includes:

- \( \frac{2}{3} \)

AND

- \( \frac{1}{2} \)

For partial credit, the student completes each task for 1 point each.
Mr. Axt trains a group of student athletes. He wants to know how they are improving in the number of push-ups they can do.

These dot plots show the number of push-ups each student was able to do last month and this month.

How much did the mean number of push-ups increase from last month to this month? [ ] . [ ] push-ups

For this item, a full-credit response (1 point) includes:

- the value 7.5
Scott's soup recipe for 4 servings has 3 carrots and 2 celery sticks.

A. Drag carrots and celery sticks into the pot to show how much Scott needs for 8 servings.

Paul's soup has tomatoes and potatoes.

B. Drag numbers into the boxes to show the ratio of tomatoes to potatoes.

For this item, a full-credit response (2 point) includes:

- 6 carrots and 4 celery sticks
  AND
- 3:4

For partial credit, the student completes the above tasks for 1 point each.
Aimee has $10.00 to spend on school supplies. This table shows how much each item at the school shop costs. No tax is charged.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Folder</td>
<td>$1.29</td>
</tr>
<tr>
<td>Pen</td>
<td>$0.70</td>
</tr>
<tr>
<td>Notebook</td>
<td>$2.35</td>
</tr>
<tr>
<td>Eraser</td>
<td>$0.89</td>
</tr>
</tbody>
</table>

Select all of the following combinations Aimee could buy with her $10.00.

- 5 folders and 5 pens
- 6 pens and 6 erasers
- 1 pen and 4 notebooks
- 3 folders and 7 erasers
- 4 folders and 2 notebooks
- 3 notebooks and 4 erasers

For this item, a full-credit response (1 point) includes:

- option A
- option B
- option E
For this item, a full-credit response (1 point) includes:

- a square with the dimensions 3 cm by 3 cm
Mike does not want to spend more than $18.00 on a new collared shirt. Select all of the following descriptions of prices for collared shirts that Mike would buy.

- 10% off $19.00
- 15% off $20.00
- 25% off $28.00
- $14.85, plus a $3.25 shipping fee
- $15.55, plus a $2.40 shipping fee
- $16.25, plus a $1.90 shipping fee

For this item, a full-credit response (1 point) includes:

- option A AND
- option B AND
- option E
You are buying two kinds of coffee.

- 1 pound of premium coffee costs $3.00.
- 1 pound of regular coffee costs $2.00.

You have $15.00 to spend and want to buy 1 pound of premium coffee.

Use the Connect Line tool to draw the solution set that shows all possible numbers of pounds of regular coffee that you can buy.

For this item, a full-credit response (1 point) includes:

- a line from 0 to 6 on the number line
Peter owns a lawn-mowing service. For every 3 hours of lawn-mowing, Peter charges $28.80.

Create an equation that models the relationship between the total charge, $y$, and the number of hours, $h$, worked.

For this item, a full-credit response (1 point) includes:

- a correct equation, such as $y = 9.60 \times h$
John needs to paint one wall in his house. He knows that 1 can of paint covers an area of 24 square feet. John uses a meterstick to measure the dimensions of the wall.

[1 meter is approximately 39 inches]

Select the least number of paint cans John can use to paint the wall. You may use the meter sticks to measure the dimensions of the wall.

For this item, a full-credit response (1 point) includes:

- 4 paint cans
For this item, a full-credit response (2 point) includes:

- steps 1, 2, and 4
  AND
- a point plotted at 8 on the number line

For partial credit, the student completes each task for 1 point each.
The entry fee to the fair is $4.00. Each ride requires a ticket that costs $0.50. Heidi spent a total of $12.00. How many tickets did she buy?

A  6
B  16
C  24
D  32

For this item, a full-credit response (1 point) includes:

- option B