Item#	Rationale
1	Option A is correct	To determine each y-value in the table,

Item#	Rationale	
2	Option H is correct	To determine how much Rebecca paid for the air filters, the student should have used the order of operations, or PEMDAS. The student should have completed the operations in this order: 1. Operations contained in Parentheses or brackets, 2. Exponents (numbers raised to a power), 3. Multiplication/Division from left to right, and 4. Addition/Subtraction from left to right. First the student should have performed the multiplication step within the parentheses (8×16.95), resulting in 135.60. Then the student should have subtracted 7.50 from 135.60, resulting in $128.10.
	Option F is incorrect	The student likely performed the operations in the correct order but made a computation error when performing the multiplication step by not regrouping each step, resulting in 88.20. The student likely subtracted 7.50 from 88.20 correctly $(88.20 - 7.50 = 80.70)$. The student needs to focus on
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Item#	Rationale	
5	Option D is correct	To determine the correct expression (combination of numbers and operational symbols $(+, -, \times, \div)$ grouped together to show

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Item#		Rationale
6	0.6 and an equivalent value are correct	To round to the tenths place, the student should have determined that the digit in the tenths place (first digit to the right of the decimal point) is 6 (0.64). The student should have then looked at the digit to the right of the 6 (0.64) and compared it to 5. Because 4 is less than 5, the digit 6 stays as is, and the answer is 0.6.

Item#	Rationale	
9	Option C is correct	To determine how much syrup in gallons was used in each cherry snow cone, the student should have interpreted the same amount of syrup in each snow cone to mean division into equal parts. The student could have determined that to divide $\frac{1}{4}$ by 16, the number 16 first has to be considered a fraction with a denominator (bottom number) of 1, represented by </MCID 546 61DC 0 0 0 rg /GS1 gs 0 -9.978 9.978 0 475.7379 226.2707 $\frac{16}{1}$

Item#	Rationale	
10	Option H is correct	To determine which statement is true about Cheyenne's weekly income, the student should have first determined that her weekly gross income (income before paying taxes) is $8 × 15 = $120. Then the student should have realized that her weekly net income (income after paying taxes) would be less than her weekly gross income of $120.
	Option F is incorrect	The student likely confused the definitions of gross income and net income and did not understand that the given information could be used only to calculate Cheyenne's weekly gross income. The student needs to focus on understanding the difference between gross income and net income.
	Option G is incorrect	The student likely confused the definitions of gross income and net income. The student needs to focus on understanding the difference between gross income and net income.
	Option J is incorrect	The student likely misunderstood that the given information could be used only to calculate Cheyenne's weekly gross income and thought the $120 represented the weekly net income. The student likely determined that the gross income would be greater than the net income. The student needs to focus on understanding that gross income can be calculated by multiplying the number of hours worked by the hourly rate of earnings.

Item#	Rationale	
11	Option B is correct	To determine the distance in kilometers Nathan rode his bike (n), the student should have first determined the distance in kilometers that Philip rode his bike. To do this, the student should have subtracted 12 from the number of kilometers Christine rode (27) because Philip rode 12 kilometers less than Christine. Since Nathan rode his bike 3 times as far as Philip, the student should have
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Item#	Rationale	
13	Option B is correct	To determine the number of kilometers that Dion ran during 28 days, the student should have multiplied 3.75 by 28 ($3.75 \times 28 = 105$). The student should have determined that multiplying 375 (3.75 without the decimal point) by 28 results in an answer of 10,500. To determine the placement of the decimal point, the student should have added the numbers of digits to the right of the decimal point in 3.75 (two) and 28 (zero) and then counted that total number of digits (two) from the right of 10,500 to place the decimal point in the answer (105 km).
	Option A is incorrect	The student likely calculated the correct product (answer) of 375 and 28 but miscounted the total number of digits to the right of the decimal points in the two given numbers to be three instead of two and then counted three digits from the right of 10,500 to place the decimal point in the answer. The student needs to focus on understanding where to place the decimal point in the product when multiplying decimal numbers.
	Option C is incorrect	The student likely misunderstood the number of days to be the number of school days in a typical week (5) and then calculated the correct product (answer) of 375 and 5. The student likely did not count the total number of digits to the right of the decimal points in 3.75 and 5 to determine how far to move the decimal point in the answer. The student needs to focus on attending to the details of the question when solving problems involving multiplication of decimal numbers.
	Option D is incorrect	The student likely misunderstood the number of days to be the number of school days in a typical week (5) and then calculated the correct product (answer) of 375 and 5. The student likely counted the total number of digits to the right of the decimal points in 3.75 and 5 to determine how far to move the decimal point in the answer. The student needs to focus on attending to the details of the question and understanding where to place the decimal point in the product when solving problems involving multiplication of decimal numbers.

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Item#	Rationale
14	Option H is correct To determine the position Juan's suitcase would be if the weights of the suitcases in pounds were ordered from greatest to least, the student should have compared the digits of each place value in each weight. Since all four weights have the digit 2 in the tens place (leftmost digit), the student should have compared the digits in the ones place (digit to the left of the decimal point) of each weight. The weights of Juan's suitcase and Kimberly's suitcase have a smaller value in the ones place …

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Item#	Rationale	
17	Option D is correct	To determine which equation is represented by the model, the student should have interpreted that the 72 shaded squares represent a value of 0.72, that the outlined sections represent dividing the 0.72 into 9 equal groups, and that the 8 shaded squares in each group represent a value of 0.08. Therefore, the model represents the equation $0.72 \div 9 = 0.08$.
	Option A is incorrect	The student likely miscounted the number of squares in each group as 9 instead of 8 and thought the value of the shaded squares in each group was 9 ones instead of 9 hundredths. The student needs to focus on understanding how to represent quotients (answers) of decimals using pictorial models.
	Option B is incorrect	The student likely miscounted the number of squares in each group as 9 instead of 8. The student needs to focus on carefully examining a given pictorial model to determine the quotient (answer) of decimals that the model represents.
	Option C is incorrect	The student likely thought the 8 shaded squares in each group were equal to 8 ones instead of 8 hundredths. The student needs to focus on understanding how to represent quotients (answers) of decimals using pictorial models.

Item#	Rationale	
18	Option F is correct	

Item#	Rationale
19	**Option C is correct** To determine how many liters of liquid soap remained in the bottle, the student could have first determined how much of the 2 liters of soap was put into the two containers by adding 0.475 liter to 0.35 liter, resulting in 0.825 liter. Then the student could have subtracted this amount from the amount of liquid soap in the full bottle (2 liters), resulting in 1.175 liters. The student also could have subtracted the amount of soap in each container from the amount of soap in the full bottle in two separate steps $(2 - 0.475 = 1.525, 1.525 - 0.35 = 1.175)$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option A is incorrect The student likely determined the total amount of liquid soap that was put into the two containers $(0.475 + 0.35 = 0.825)$ but did not perform any additional steps. The student needs to focus on understanding problem situations and the mathematical operations $(+, -, \times, \div)$ needed to solve them.
	Option B is incorrect The student likely determined the total amount of liquid soap that was put into the two containers $(0.475 + 0.35 = 0.825)$ but subtracted 0.2 liter from 0.825 liter instead of subtracting 0.825 liter from 2 liters $(0.825 - 0.2 = 0.625)$. The student needs to focus on how to write a whole number as a decimal number.
	Option D is incorrect The student likely aligned the numbers 0.475 and 0.35 on their rightmost digits 393.9816 22 35 The 2 (digits 393.98164(ThTD <</MCID4 rmber)]T

Item#	Rationale
20	Option G is correct To determine the difference between the number of students who did more than 36 sit-ups and the number of students who did fewer than 25 sit-ups, the student should have analyzed the stem and leaf plot looking for values greater than 36 and less than 25. Using the key "6|2 means 62" to interpret the meaning of the stems and leaves, the student should have determined that there are 12 values on the stem and leaf plot that are greater than 36 (37, 44, 46, 47, 47, 50, 53, 62, 62, 76, 90,

Item#		Rationale
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Item#	Rationale	
23	Option B is correct	To determine how many milliliters of orange juice Kristin drinks during the 15 days, the student could have first multiplied 0.5 liter by 15 to determine that Kristin drinks 7.5 liters of orange juice in 15 days (0.5 × 15 = 7.5). Then the student should have referred to the units shown in the Volume and Capacity section of the STAAR Grade 5 Mathematics Reference Materials page within the student's test booklet, finding that 1 lite (L) = 1,000 milliliters (mL). The student should then have multiplied the number of milliliters of orange juice Kristin drinks in 15 days (7.5) by the conversion factor (1,000), resulting in 7,500 milliliters. The student could also have multiplied 0.5 liter by the conversion factor 1,000 first and then multiplied the result by 15 days (0.5 × 1,000 = 500 and 500 × 15 = 7,500).
	Option A is incorrect	The student likely misunderstood the given information, thinking that 15 was the total number of liters of orange juice Kristin drinks, and multiplied 15 by the conversion factor of 1,000, resulting in 15,000. The student needs to focus on understanding problem situations and the mathematical operations (+, −, ×, ÷) needed to solve them.
	Option C is incorrect	The student likely calculated the number of liters of orange juice Kristin drinks in 15 days but multiplied the number of liters by 100 instead of 1,000, calculating 7.5 × 100 = 750 . The student needs to focus on understanding that a volume given in liters should be multiplied by 1,000 to get the equivalent volume in milliliters.
	Option D is incorrect	The student likely calculated the number of liters of juice Kristin drinks in one day by calculating 0.5 × 1,000 = 500 . The student needs to focus on understanding problem situations and the mathematical operations (+, −, ×, ÷) needed to solve them.

Item#	Rationale
24	**Option H is correct** To determine which equation can be used to determine the fraction of the whole cake each friend will receive, the student should have recognized that the model is shaded to show the fraction $\frac{1}{2}$ divided into 3 parts and that each shaded part represents $\frac{1}{6}$ of the entire cake. Therefore, the model is shaded to represent the equation $\frac{1}{2} \div 3 = \frac{1}{6}$.
	Option F is incorrect The student likely identified that the model showed 3 shaded parts and the total part of the model that is shaded is $\frac{1}{2}$ but confused the operation being represented in the problem as multiplication instead of division. The student needs to focus on understanding how to represent division of a unit fraction by a whole number using a pictorial model.
	Option G is incorrect The student likely identified that the model showed a total of 6 equal parts and that total part of the model that is shaded is $\frac{1}{2}$. Then the student likely confused the operation being represented in the problem as multiplication instead of division. The student needs to focus on understanding how to represent division of a unit fraction by a whole number using a pictorial model.
	Option J is incorrect The student likely identified that the total part of the model that is shaded is $\frac{1}{2}$ and that division would be used to solve the given problem situation but identified an equation that included the total number of parts in the model (6) instead of the number of parts into which the shaded area was divided (3). The student needs to focus on understanding how to represent division of a unit fraction by a whole number using a pictorial model.

Item#	Rationale	
25	Option B is correct	To

Item#	Rationale	
27	Option B correct	The student should have determined that the graph with points located at $(1, 1\frac{1}{2})$, $(2, 2\frac{1}{2})$, $(3, 3\frac{1}{2})$, $(5, 5\frac{1}{2})$ and $(6, 6\frac{1}{2})$ best represents the ordered pairs in the table. The student should have determined that the x-value (presented in the top row of the table) represents the horizontal distance to the right from zero, and the y-value (presented in the bottom row of the table) represents the vertical distance up from there.
	Option A incorrect	The student likely reversed the x-values and y-values and identified the graph with points located at $(1\frac{1}{2}, 1)$, $(2\frac{1}{2}, 2)$, $(3\frac{1}{2}, 3)$, $(5\frac{1}{2}, 5)$ and $(6\frac{1}{2}, 6)$. The student needs to focus on understanding how to graph points on the coordinate plane with accuracy.
	Option C incorrect	The student likely identified a graph with the first three sets of x- and y-values graphed and assumed that the x-values of the points on the graph were 1, 2, 3, 4, and 5 instead of 1, 2, 3, 5, and 6. The student needs to focus on graphing ordered pairs of numbers found in an input-output table.
	Option D incorrect	The student likely reversed the x-values and y-values in the table and thought that the y-values of the points on the graph were consecutive numbers (1, 2, 3, 4, and 5) instead of 1, 2, 3, 5, and 6. The student needs to focus on graphing ordered pairs of numbers found in an input-output table and understanding how to graph points on the coordinate plane with accuracy.
28	41.5 and any equivalent values are correct	To determine the length of the remaining rope in inches written in decimal form, the student could have found the decimal equivalent of $\frac{1}{2}$

Item#	Rationale	
30	Option G is correct	To identify the table of values that does NOT represent $y = x + 4.5$, the student should have identified a table where at least one y-value was not the result of adding 4.5 to the corresponding (paired) x-value. Because the value of $4 + 4.5$ is not 18.0, the value of $5 + 4.5$ is not 22.5, the value of $6 + 4.5$ is not 27.0, and the value of $9 + 4.5$ is not 40.5, this table of values does not represent $y = x + 4.5$.
	Option F is incorrect	The table represents the equation $y = x + 4.5$. The student likely made a calculation error when checking whether or not each y-value is the result of adding 4.5 to the corresponding x-value. The student needs to focus on understanding equations and evaluating them accurately to generate corresponding x- and y-values.
	Option H is incorrect	The table represents the equation $y = x + 4.5$. The student likely made a calculation error when checking whether or not each y-value is the result of adding 4.5 to the corresponding x-value. The student needs to focus on understanding equations and evaluating them accurately to generate corresponding x- and y-values.
	Option J is incorrect	The table represents the equation $y = x + 4.5$. The student likely made a calculation error when checking whether or not each y-value is the result of adding 4.5 to the corresponding x-value. The student needs to focus on understanding equations and evaluating them accurately to generate corresponding x- and y-values.

Item#	Rationale	
31	Option A is correct	To determine the scatterplot that best represents the data in the table, the student should have identified the scatterplot with points located at (15, 5), (12, 2), (20, 3), (16, 5), (14, 2), (18, 3), (15, 3), (16, 4), (12, 1), and (15, 4). The student should have determined for each point on the graph that the x-value (presented in the top row of the table) represents the horizontal distance to the right from zero and the y-value (presented in the bottom row of the table) represents the vertical distance up from the x-value.
	Option B is incorrect	The student likely identified a graph where only one point was graphed for each unique value of x in the table. The student needs to focus on understanding how to graph points on the coordinate plane using x- and y-values from a table.
	Option C is incorrect	The student likely identified a graph with most of the points graphed correctly but misidentified the locations of the three ordered pairs in the table with x-values of 15 which were each graphed with an x-value of 14. The student needs to focus on understanding how to graph points on the coordinate plane using x- and y-values from a table.
	Option D is incorrect	The student likely identified a graph with most of the points graphed correctly but misidentified the locations of the three ordered pairs in the table with x-values of 15 which were each graphed with an x-value of 16. The student needs to focus on understanding how to graph points on the coordinate plane using x- and y-values from a table.

Item#	Rationale	
32	Option F is correct	To determine how many miles Mr. Adams drove each day, the student should have divided the total number of miles by the number of days (151.2 ÷ 24), resulting in 6.3 miles.
	Option G is incorrect	The student likely divided 151.2 by 24 but made errors in determining the digits of the quotient (answer). The student likely did not regroup when multiplying in the division algorithm (procedure)

Item#	Rationale	
33	Option B is correct	To determine the volume of the container in cubic feet, the student should have understood that each of the 8 layers contains 36 blocks and multiplied 8×36, resulting in 288 cubic feet.
	Option A is incorrect	The student likely only calculated the number of boxes in the base layer shown in the picture. The student needs to focus on understanding how to determine the volume of a rectangular prism by multiplying the number of layers times the number of unit cubes that create the base layer.
	Option C is incorrect	The student likely counted the number of visible square faces in the base layer of boxes shown in the picture and multiplied this value (48) by the number of layers (8), resulting in 384. The student needs

Item#	Rationale
34	**Option F is correct** To determine how many days Timmy can eat the blueberries before they are all gone, the student should have interpreted "He will eat $\frac{1}{2}$ cup of blueberries each day" as a division into 2 equal parts. The student could have determined that to divide 3 by $\frac{1}{2}$ the number 3 first has to be considered a fraction with a denominator (bottom number) of 1, represented by $\frac{3}{1}$. Then the student could have determined that $\frac{3}{1}$ divided by $\frac{1}{2}$ is equal to $\frac{3}{1}$ multiplied by $\frac{1}{2}$ inverted (flipped upside down) $\left(\frac{3}{1} \div \frac{1}{2} = \frac{3}{1} \times \frac{2}{1} = \frac{6}{1} = 6 \right)$. This is an

Item#		Rationale
36	Option is correct	To determine the amount of money represented by the student should have used the order of operations, PEMDAS. The student should have completed the operations in this order:
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