Item #	Rationale	
1	Option B is correct	To determine where $-\sqrt{169}$ should be placed in the Venn diagram, the student should have simplified the value. Since $-\sqrt{169} = -13$, the student should recognize that it is a negative integer and should be placed in the set of integers.
	Option A is incorrect	The student likely divided 169 by 2 instead of finding the square root, resulting in 84.5. The student then likely correctly assigned 84.5 to the set of rational numbers (numbers that can be written as fractions) because it is a terminating decimal. The student needs to focus on simplifying square roots.
	Option C is incorrect	The student likely divided 169 by 2 instead of finding the square root, resulting in 84.5. The student then likely correctly assigned 84.5 to the set of irrational numbers (numbers that cannot be written as fractions), interpreting negative values as irrational. The student needs to focus on simplifying square roots and understanding the difference between rational and irrational numbers.
	Option D is incorrect	The student likely evaluated $-\sqrt{169}$ as 13, forgetting to include the negative sign after evaluating. The student then incorrectly assigned 13 to the set of whole numbers (numbers greater than or equal to zero without fractional parts), instead of placing it into the set of natural numbers (positive whole numbers) because it is an integer greater than zero. The student needs to focus on simplifying square roots and understanding the difference between natural and whole numbers.

Item #	Rationale	
3	Option C is correct	To determine whether the point (4, 3) belongs to the function (relationship in which each input [value put into an equation,] has a single output [value that comes out of the equation]) described in the table, the student should have determined that each value of can be paired with

Item #	Rationale	
4	Option D	

Item #	Rationale	
5	Option A is correct	To determine which proportion represents the slope (steepness of a straight line when graphed on a coordinate grid) of the line containing points , , and , the student could have determined the slope of each line segment that lies on the graph of the line, using the formula for slope, I L $\frac{ì . ? ì -}{ë . ? ë -}$. For 4 $, the student could have written the slope as $\frac{: ? : ? 8 ;}{? 5 5 ? : ? : ;}$, which simplifies to 2. For 4 $, the student could have written the slope as $\frac{: ? 6}{? 5 5 ? : ? =;}$, which also simplifies to 2. Therefore, the slopes of the two line segments are equal. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option B is	

Item #	Rationale	
6	Option D is correct	To determine the total surface area of the

Item #	Rationale	
7	Option B is correct	To determine which table

Item #	Rationale	
8	t 4, + 3	To complete the rule that describes the transformation, the student could have considered the translation in each direct (es 606.7 0.72 94

Item #	Rationale	
9	Option B is correct	To determine which measurement is closest to the side length of th wall, the student should have determined that the side length in feet i

Item #	Rationale	
10	Option A is correct	To determine the value of in the equation modeled by the tiles, the student should have first identified the equation modeled as t3 + 4 = t2 + 1. The student could have subtracted 4 from each side o the equation to simplify it to t3 = t2 + t3. Next, the student could have added t2 to each side, resulting in t = t3. Finally, the student could have divided each side by 1, resulting in a solution of = 3. This is an efficient way to solve the problem; however, other methods coul used to solve the problem correctly.
	Option B is incorrect	The student likely canceled out 3 ^t _š] o by adding ï ^_ š] to each side of the equation, leaving ð ^ í _ š] o • ‹ (1 _š] š} í v^ í tiles. The student then likely combined š Z ^tiles to make 5 and found the solution to be = 5. The student needs to focus on using the proper steps to solve an equation.
	Option C is incorrect	The student likely identified the correct initial equation (t3 + 4 = t2 + 1) and took the first steps in solving it, resulting in t = t 3. The student likely identified the value of t3 as the solution instead of dividing both sides of the equation by 1. The student needs to focus o using the proper steps to solve an equation.
	Option D is incorrect	The student likely counted a total of ñ t^ _ š] o as a total of ñ ^ í tiles and determined that 5 (t) = 5, which would result in = t1. The student

Item #	Rationale	
11	Option C is correct	To determine which statement is true, the student should have concluded that when a shape is dilated, the length of each side of the shape is multiplied by the same scale factor.
	Option A is incorrect	The student likely misunderstood the effects of a dilation, concluding that a dilation multiplies the measure of each angle by the scale fac The student needs to focus on understanding the effects of a scale applied to a two-dimensional figure on a coordinate plane.
	Option B is incorrect	The student likely misunderstood the effects of a dilation, concluding that a dilation affects the measure of each angle by adding the scale factor to the angle. The student needs to focus on understanding th effects of a scale factor applied to a two-dimensional figure on a coordinate plane.
	Option D is incorrect	The student likely misunderstood the effects of a dilation, concluding that a dilation affects the side lengths by addition of the scale factor instead of multiplication. The student needs to focus on understandin the effects of a scale factor applied to a two-dimensional figure on a coordinate plane.

Item #	Rationale	
13	Option D is correct	To determine the ordered pair that represents the solution to the system of equations, the student should have identified the intersection point of the two lines, found the x- and y-coordinates of the intersection, and written those coordinates as an ordered pair in the form (x, y). Since the lines intersect at point $(4, 5)$, this pair represents the solution to the system. 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 intersection point of the two lines but switched the order of x and y in the ordered pair itself, (y, x). The student needs to focus on naming points in the plane with ordered pairs.
	Option B is incorrect	The student likely identified the intersection of one of the lines with the y-axis.

Item #	Rationale	
15	$625; $750	To determine the monthly amount that

Item #	Rationale	
19	Option B is correct	To determine the rule that is applied to the original rectangle to create the new rectangle, the student should have understood that when a figure is dilated (enlarged or reduced in size), its measurements inc or decrease based on the scale factor (ratio of the length of a side of one figure to the length of the corresponding [paired] side of a similar figure). A dilation by a scale factor with the origin (the point represented by (0,0), where the -axis [horizontal] and -axis [vertical] on a coordinate grid intersect [cross]) as the center of dilation means that each point on the dilated figure will be a certain number of times as from the origin as it was on the original figure. Since the location of a

Item #	Rationale	
20	Option D is correct	To determine which equation represents the linear function that contains the p* n BT /TT0 1 Tf 11.04 sea587.55 /TT0 1 Tf 11.04e 1

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Item #	Rationale	
27	Option A is correct	To determine the volume (amount of three-dimensional space taken up) of the cone, the student should have used the volume formula of a cone (8 L $\frac{5}{7}$ èN^{6}D, where represents the volume, represents the radius (distance from the center to the circumference of the circular base) and represents the height (vertical distance from top to bottom) of the cone). The student should have identified the radius 5 centimeters and the height as 12 centimeters. Substituting = 5 and = 12 into the formula results in 8 $\frac{5}{}$

Item #	Rationale	
32	Option B is correct	To determine the initial amount of money placed in the jar, the stude should have determined the weekly savings and worked backward t determine the starting value. The student could have used the first tw rows of the table to determine that Josh saved $60 in two months, for a unit rate of $30/month. The student should have determined that between 0 and 5 months, Josh would have saved $150, which is $75 less than the amount in the jar at 5 months. The student should have concluded that the initial amount put in the jar was $75. 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 misinterpreted the amount of money in the top row the table, $225, as the initial amount. The student should focus on recognizing that the initial amount occurs when $x = 0$. The student need to focus on identifying and interpreting the y-intercept and rate of change in real-world situations.
	Option C is incorrect	The student likely divided the amount of money in the jar at 5 months

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Item #	Rationale	
34	Option D is correct	To determine which mapping (a representation of a relation in which arrows are used to show the pairing of values) represents as a function (relation of values in which each -value is paired with exactly one -value) of , the student should have checked to see whether each value of , contained in the oval labeled , is paired with exactly one value of , contained in the oval labeled . In this mapping, the arrows indicate that = −1.5 is paired with = 1.5, = −1.0 is paired with = 1.0, = −0.5 is paired with = 1.0, and = 0.5 is paired with = 1.0. Therefore, each value of is paired with exactly one value of

Item #	Rationale	

Item #		Rationale
37	$250.00, $506.25	To determine the interest the investment account will earn at the end of the first and second years, the student should have used the formula for compound interest to determine the balance in the account for each year and subtracted the principal (initial deposit) from each balance. The student should have used the formula $A = P(1 + r)^t$, where A represents the account balance in dollars, P represents the principal in dollars, r represents the interest rate in decimal form, and t represents the time in years. The student should have found the ending balance for the first year by substituting $P = 10{,}000$, $r = 0.025$, and $t = 1$ into the formula, resulting in $A = (10{,}000)(1.025)^1 = \$10{,}250$. The interest earned is $2.1gIET Q q 213

Item #	Rationale	
38	Option C is correct	To determine which proportion (comparison of two ratios) is true fo similar figures (two figures with corresponding angles that are equ and corresponding sides that are proportional), the student should have determined that the corresponding (paired) angles in quadrilateral and quadrilateral are equal, which means that the lengths of the corresponding sides of the figures forming thos equal angles are proportional. The student then should have determined that the ratio $\frac{6\ 4}{7\ 4}$ relates the length of the bottom side in quadrilateral to the length of the bottom side in quadrilateral . The ratio $\frac{9}{\ddot{e}}$ represents the ratio of the length of the right side in quadrilateral to the length of the right side in quadrilateral .
	Option A is incorrect	The student likely reversed the ratio on the right side of the equation; $\frac{\grave{\imath}}{5\ 9}$ is equal to $\frac{6<}{6\ 6\ 9}$ not to $\frac{6\ 6\ 9}{6<}$. The student needs to focus on paying

Item #	Rationale	
40	Option C is correct	To determine the correct similarity statement about the fourth pair of triangles, the student should 3.98T v]TJ ET Q q 212.93 579.94 325.9