

STAAR Spring 2024 Grade 3 Mathematics Rationales

Item Position	Rationale	
1	Option A is correct	To determine how many hot dogs were sold during the carnival, the student should have subtracted the number of hot dogs that were not sold, 83, from the total number of hot dogs the school started with, 375.
	Option B is incorrect	The student likely understood that 83 should be subtracted from 375 but subtracted the smaller digit from the larger digit in the tens place. The student needs to focus on understanding how to regroup numbers, when needed, for subtraction.
	Option C is incorrect	The student likely misunderstood the question and therefore added 375 and 83 rather than subtracting 83 from 375. The student needs to focus on choosing the correct operations when solving word problems.
	Option D is incorrect	The student likely understood that 83 should be subtracted from 375 but did not regroup correctly in the tens place, reducing the digits in both the hundreds place and the tens place by 1 (rewriting 375 as 2 ¹ 65 [2 hundreds, 16 tens, 5 ones]). The student needs to focus on understanding how to regroup numbers, when needed, for subtraction.

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2	Option D is correct	<p>To determine which number is described by the clues, the student should have first compared 89,572 with 89,236 by evaluating the value of each digit, starting with the greatest place value. Both numbers have an 8 in the ten-thousands place and both numbers have a 9 in the thousands place; however, 89,572 has a 5 in the hundreds place, which is greater than 2, the digit in the hundreds place in 89,236. So, 89,572 is greater than 89,236 (first clue). Next, the student should have compared 89,572 with 91,103 by evaluating the value of each digit, starting with the greatest place value. The number 89,572 has an 8 in the ten-thousands place, and 91,103 has a 9 in the ten-thousands place, so 89,572 is less than 91,103 (second clue). Finally, the student should have looked at the digit in the thousands place of 89,572. The digit in the thousands place is 9, which is greater than 7 (third clue).</p>
	Option A is incorrect	The student likely did not use the first clue and found an answer choice that is less than 91,103 and that has a digit greater than 7 in the thousands place. The student needs to focus on attending to the details of the question.
	Option B is incorrect	The student likely used the first clue to eliminate 89,236 and 88,598 but misinterpreted the second clue, disregarded the third clue, and selected the remaining answer choice that is closest in value to 91,103. The student needs to focus on attending to the details of the question.
	Option C is incorrect	The student likely confused the terms “greater than” and “less than” to mean addition and subtraction. Therefore, the student added each answer choice to 89,236, subtracted 91,103 from the sum, and then chose the number for which the result had a 7 ONLY in the thousands place. The student needs to focus on attending to the details of the question.

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Item Position	Rationale
3	2 dots, 4 <p>To determine why Ben's dot plot (a graphical way of showing the frequency of an event by placing a dot or dots above a value on a number line) is incorrect, the student should have matched the numbers from the results shown (the ten times the number cube was rolled) to the numbers of dots on the number line. The number 1 was rolled 1 time, so the 1 dot above 1 on the number line is correct. No 2s were rolled, so it is correct that there are no dots above 2. The number 3 was rolled 2 times, so the 2 dots above 3 are correct. The number 4 was rolled 2 times, so there should be 2 dots above the 4; however, there is only 1 dot. Therefore, Ben's dot plot is incorrect because there should be 2 dots above the number 4.</p>

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4	Option C is correct	To determine the relationship between the thousands place and the tens place in the number 583,436, the student could have first determined that the digit in the thousands place and the digit in the tens are both 3. Place value increases from right to left (ones, tens, hundreds, thousands, ten thousands, hundred thousands, and so forth). The value of each digit is 10 times the value of the digit to its right. Since the 3 in the tens place is two digits to the right of the 3 in the thousands place, the value needs to be multiplied by 10 twice, which results in 100 ($10 \times 10 = 100$). The 3 in the tens place represents 30, and $30 \times \mathbf{100} = 3,000$. The thousands place is one hundred times greater than the tens place. 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 did not use the place-value rules and noticed that the 3 in the thousands place is two places to the left of the 3 in the tens place. The student needs to focus on understanding place value.
	Option B is incorrect	The student likely confused the hundreds place with the thousands place. The student needs to focus on understanding place value.
	Option D is incorrect	The student likely found that the hundreds place is 10 times the place to its right and calculated $30 \times 10 = 300$. The student then determined that the thousands place was 300 times greater than the tens place. The student needs to focus on understanding place value.

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5	Option B is correct	To determine whether the price of oranges will increase or decrease and why, the student should have used the relationship between availability (the quantity of an item that is available to consumers) and scarcity (when the demand for an item is greater than the availability of the item) of resources and how that affects cost. When an item is scarce, the price of the item will increase because the supply cannot meet the demand, and customers will pay more to purchase the item. When the item is readily available, the price of the item will decrease to encourage customers to purchase more of the item so that the seller can make a profit. Therefore, the fact that the farmers will have more oranges for sale means that the price of the oranges is likely to decrease.
	Option A is incorrect	The student likely confused the effects of supply and demand, thinking a greater supply would result in prices increasing instead of decreasing. The student needs to focus on understanding the relationship between scarcity and cost.
	Option C is incorrect	The student likely understood that a decreased supply means that the cost will increase but did not recognize that the farmers increased the number of oranges by growing more trees. The student needs to attend to the details of the question.
	Option D is incorrect	The student likely did not recognize that the farmers increased the number of oranges by growing more trees, and confused the effects of supply and demand, thinking a decrease in supply would result in a decrease in price. The student needs to focus on understanding the relationship between scarcity and cost.

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Item Position	Rationale	
6	Option A is correct	<p>To determine which figures have a perimeter of 36 feet, the student should have recognized that the perimeter is the distance around a figure, meaning the measurements of all the sides of the figure should be added together. The student should have calculated the perimeters of the figures:</p> <p>the perimeter of Figure P is $13 + 5 + 13 + 5 = 36$;</p> <p>the perimeter of Figure Q is $6 + 6 + 6 + 6 + 6 = 36$;</p> <p>the perimeter of Figure R is $11 + 7 + 11 + 7 = 36$;</p> <p>the perimeter of Figure S is $12 + 12 + 12 = 36$;</p> <p>and the perimeter of Figure T is $6 + 6 + 6 + 6 = 24$.</p> <p>Therefore, the figures with a perimeter of 36 are P, Q, R, and S.</p>
	Option B is incorrect	The student likely miscalculated the perimeter of Figure P ($13 + 5 + 13 + 5$) and got a sum other than 36 but calculated the perimeters of Figures Q and R correctly to get 36. The student also likely miscalculated the perimeter of Figure S ($12 + 12 + 12$) and got a sum other than 36 and miscalculated the perimeter of Figure T ($6 + 6 + 6 + 6$) as equal to 36. The student needs to focus on applying the perimeter formula to figures and adding multiple numbers correctly.
	Option C is incorrect	The student likely miscalculated the perimeter of Figure Q ($6 + 6 + 6 + 6 + 6 + 6$) as equal to a sum other than 36. The student likely calculated the perimeters of Figures P, R, and S correctly to get 36. The student needs to focus on applying the perimeter formula to figures and adding multiple numbers correctly.
	Option D is incorrect	The student likely miscalculated the perimeter of Figure T ($6 + 6 + 6 + 6$). The student needs to focus on applying the perimeter formula to figures and adding multiple numbers correctly.

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Item Position	Rationale	
7	Option B is correct	To determine which representation can be used to find the number of miles Jada has already traveled, the student could have determined that if the total number of miles Jada will travel to visit her aunt is 789, and she still has 321 more miles to go, then \square miles could be added to 321 miles to get a sum of 789. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option E is correct	To determine which representation can be used to find the number of miles Jada has already traveled, the student could have determined that if the total number of miles Jada will travel to visit her aunt is 789, and she has 321 more miles to go, then the unknown number of miles (?) could be added to 321 to get a sum of 789. The student saw that the top row of the model was the total number of miles, and the bottom row is split into two parts to show that an unknown number plus 321 is equal to 789. 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 that Jada would have to travel a total of 789 miles and that the \square represented the number of miles Jada had already traveled. However, the student subtracted the \square from 321 instead of adding it to 321. The student needs to focus on attending to the details of the question and understanding how to set up equations with variables.
	Option C is incorrect	The student likely misunderstood the information provided in the problem and did not realize that the unknown number (represented by “ \square ” or “?” in each representation) is the number of miles Jada has already traveled. Instead, the student

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		determined that Jada needed to travel 789 miles plus an additional 321 miles to reach her aunt's house. The student represented the total distance as the unknown number (?). The student needs to focus on attending to the details of the question and understanding how to set up equations with variables.
	Option D is incorrect	The student likely did not realize that the unknown number represented the number of miles Jada had already traveled. The student likely found the total number of miles to her aunt's house, 789, and then interpreted the second sentence to mean that Jada traveled "321 miles more" So, the student added 789 and 321 to equal an unknown number (?). The student needs to focus on attending to the details of the question and focus on understanding how to set up equations with variables.

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Item Position	Rationale	
8	Option C is correct	To determine which number Michel's point could represent, the student could have determined that the number exactly halfway between 200 and 300 on the number line is 250. If the point Michel plotted is more than halfway between 200 and 300, then it must represent a number greater than 250. The only answer choice greater than 250 is 264. 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 realized that the number halfway between 200 and 300 is 250 but misinterpreted the second sentence to mean that the point is halfway between 200 and 250. The student needs to focus on attending to the details of the question.
	Option B is incorrect	The student likely did not recognize that the number needed to be more than halfway between 200 and 300 and just chose a number that was between 200 and 300. The student needs to focus on attending to the details of the question.
	Option D is incorrect	The student likely misinterpreted the statement that the point is more than halfway between 200 and 300, or greater than (and not equal to) 250, and just found the number halfway between 200 and 300. The student needs to focus on attending to the details of the question.

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Item Position	Rationale	
9	Option A is correct	To determine which equation (number sentence) CANNOT be used to find the answer the student in the question circled, the student could have realized that the product (the result of a multiplication expression) of $10 \times 10 \times 10 \times 10 = 10,000$, so that cannot be the answer that is circled. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option B is incorrect	The student likely interpreted the equation as 4 jumps of 10, compared that to the 10 jumps of 4 (as represented in the problem), and believed the two equations were different despite having equal products. The student needs to focus on representing multiplication facts using a variety of approaches.
	Option C is incorrect	The student likely did not understand that the correct answer had to be an equation that did not equal 40 and found that $10 \times 4 = 40$. The student needs to focus on attending to the details of the question.
	Option D is incorrect	The student likely did not understand that the correct answer had to be an equation that did not equal 40 and used the skip counting row to make 10 jumps of 4 to the number 40, which is equal to $4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 = 40$. The student needs to focus on attending to the details of the question.

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Item Position		Rationale
10	incorrect, out of 7 equal parts	To determine whether Byron's claim is correct or incorrect and why, the student should have looked at the fraction model shown and counted 7 (the denominator) parts with 1 part shaded (the numerator). However, the student should have known that for the fraction model to correctly represent $\frac{1}{7}$, the 7 parts need to be equal in size.

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Item Position	Rationale	
11	Option D is correct	To determine how many squares are on 8 rows of the game board, the student should have understood that 7 more rows of squares would be added to the model to make the whole game board. There would then be a total of 8 rows of 8 squares, and $8 \times 8 = 64$.
	Option A is incorrect	The student likely understood that 7 more rows would be added to the model but found only the number of squares that were not shown in the model: 7 rows of 8 squares, and $7 \times 8 = 56$. The student needs to focus on attending to the details of the question and understanding how to determine the total number of objects when equal-sized groups of objects are combined.
	Option B is incorrect	The student likely counted only the squares in the model shown. The student needs to focus on attending to the details of the question and understanding how to determine the total number of objects when equal-sized groups of objects are combined.
	Option C is incorrect	The student likely added the 8 squares in the model to the 8 that represented the number of rows of the game board and used the equation $8 + 8 = 16$. The student needs to focus on attending to the details of the question and understanding how to determine the total number of objects when equal-sized groups of objects are combined.

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Item Position	Rationale	
12	Option A is correct	To determine which answer choice best describes two quadrilaterals that are pieces of the puzzle, the student should have understood that the definition of a quadrilateral is a figure with exactly 4 sides, and the only figures in the puzzle that have 4 sides are the square and the parallelogram. The other figures in the puzzle are triangles, which have exactly 3 sides.
	Option B is incorrect	The student likely found the two types of figures that made up the puzzle, which are parallelograms (which include squares) and triangles. The student needs to focus on attending to the details of the question.
	Option C is incorrect	The student likely understood that the definition of a quadrilateral is a figure with exactly 4 sides but confused the parallelogram with a trapezoid, which also has 4 sides but is not included in the puzzle as a single piece. The student needs to focus on attending to the details of the question and identifying different types of quadrilaterals.
	Option D is incorrect	The student likely misidentified the parallelogram as a rhombus, classifying both the square and the parallelogram as rhombuses. The student also likely was confused about the characteristics of quadrilaterals, describing the triangles in the puzzle as "quadrilaterals." The student needs to focus on identifying different types of quadrilaterals.

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Item Position	Rationale	
13	Option B is correct	To determine the relationship between the number of burritos and the number of pounds of meat, the student could have understood that if 1 pound of meat makes 6 burritos, then 2 pounds of meat would make twice that number of burritos. The pattern in the table would then be that the number of burritos is the number of pounds of meat times 6, or the number of pounds of meat is the number of burritos divided by 6. In this table, all the sets of numbers follow that rule: $6 \div 6 = 1$, $12 \div 6 = 2$, $60 \div 6 = 10$, and $84 \div 6 = 14$. 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 misunderstood the pattern as being "minus 6" instead of "divided by 6": $7 - 6 = 1$, $8 - 6 = 2$, $16 - 6 = 10$, and $20 - 6 = 14$. The student needs to focus on understanding the details of verbal descriptions of relationships between numbers paired in a table.
	Option C is incorrect	The student likely reversed the relationship, identifying 1 burrito as being made from 6 pounds of meat, so that the rule would be the number of burritos times 6 instead of the number burritos divided by 6. The student needs to focus on understanding the details of verbal descriptions of relationships between numbers paired in a table.
	Option D is incorrect	The student likely found a pattern in the table (number of burritos minus 5) instead of finding the relationship described in the problem. The student needs to focus on understanding the details of verbal descriptions of relationships between numbers paired in a table.

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Item Position	Rationale	
14	Option B is correct	To determine how many miles Joseph ran on the sixth day, the student should have recognized that each dot on the dot plot (a graphical way of showing the frequency of an event by placing a dot or dots above a value on a number line) represents the number of miles Joseph ran on one day. The student then should have calculated the data shown on the dot plot. Joseph ran 0 miles on 1 day, 2 miles on each of 2 days, 5 miles on 1 day, and 8 miles on 1 day, which results in a sum of 17 miles ($0 + 2 + 2 + 5 + 8$) for the 5 days shown. The student then should have subtracted those 17 miles from the total of 25 miles that Joseph ran, to determine the number of miles that he ran on the sixth day, $25 - 17 = 8$ miles. Since there is only one dot left to be placed on the dot plot, the dot should go above 8 miles.
	Option A is incorrect	The student likely interpreted “the sixth day” to mean that Joseph ran 6 miles on the sixth day. The student needs to focus on attending to the details of the question.
	Option C is incorrect	The student likely determined the correct number of miles represented on the dot plot but neglected to subtract that number from 25. The student needs to focus on attending to the details of the question.
	Option D is incorrect	The student likely used each number on the dot plot only once, meaning that for 2 miles, the student calculated the 2 only once for a total of 15 miles ($0 + 2 + 5 + 8$). The student then subtracted that incorrect number of miles from the total of 25 miles ($25 - 15 = 10$) to find the number of miles run on the sixth day. The student needs to focus on attending to the details of the question and on interpreting dot plots.

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Item Position	Rationale
15	<p>x, x</p> <p>To complete the equation, with the numbers given, that represents the total number of basketballs at the sports complex, the student should have recognized that the relationship between the number of basketball courts, 4, and the number of bags of basketballs for each court, 2, should be represented by multiplication. Similarly, the relationship between the number of bags of basketballs, 2, and the number of basketballs in each bag, 7, should also be represented by multiplication. Therefore, since there are 4 basketball courts, each basketball court has 2 bags of basketballs, and each bag has 7 basketballs in it, the number sentence $4 \times 2 \times 7 = \square$ represents the total number of basketballs.</p>

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Item Position	Rationale	
16	Option C is correct	To determine which figures could be Calvin’s, the student should have used the definition of congruent figures (figures that are the same shape and size) to confirm that the two squares in option C are congruent. Then the student should have determined that each square has been divided into four equal-sized pieces (four equal-sized squares in the first square and four equal-sized triangles in the second square) and that each square has one part shaded out of the four equal parts.
	Option A is incorrect	The student likely saw that the shapes are the same (circles) and that each circle has $\frac{1}{4}$ shaded, but the student did not take into account that the circles are not the same size. The student needs to focus on understanding that congruent figures have the same area.
	Option B is incorrect	The student likely saw that the second shape could be completed to match the first shape and that an equal-sized part was shaded on each shape, but the student did not take into account that the shapes are different. The student needs to focus on understanding the properties of congruent figures.
	Option D is incorrect	The student likely saw that the shapes are the same and that they are the same size, but the student did not consider that the areas shaded are different. The first triangle has $\frac{3}{4}$ shaded, and the second triangle has $\frac{1}{4}$ shaded. The student needs to focus on understanding congruent shading of figures.

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Item Position	Rationale	
17	Option B is correct	To determine which value is Eliza's estimate, the student should have taken the number of miles for each of the three days and rounded each number to the nearest ten, meaning that if the number ends in 1, 2, 3, or 4, it is rounded down to the nearest ten, and if the number ends in 5, 6, 7, 8, or 9, it is rounded up to the nearest ten. Here, 12 rounds down to 10, 9 rounds up to 10, and 7 rounds up to 10. To find the total estimate, the student then should have added $10 + 10 + 10 = 30$ miles.
	Option A is incorrect	The student likely realized that 12, 9, and 7 all round to 10 but neglected to add the three numbers of miles. The student needs to focus on attending to the details of the question.
	Option C is incorrect	The student likely rounded 7 and 9 to 10 but incorrectly rounded 12 to 20, which results in $10 + 10 + 20 = 40$ miles. The student needs to focus on determining when to round up and when to round down.
	Option D is incorrect	The student likely did not round first, adding $12 + 9 + 7 = 28$, and then incorrectly rounded 28 down to 20. The student needs to focus on determining when to round up and when to round down.

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Item Position	Rationale	
18	Option A is correct	To determine the length of the flag, the student should have recognized that “perimeter” means the distance around a figure. Therefore, if the perimeter of the rectangular flag is 40 inches, the sum of the measurements of the flag’s four sides equals 40. Because opposite sides of a rectangle are the same length, if the width on one side is 5 inches, its opposite side is also 5 inches, so the total length of those two sides is 10 inches. To find the total length of the other two sides, the student should have subtracted 10 from 40: $40 - 10 = 30$. Therefore, the length of the flag would be the length of each of the two remaining sides, which could be found by dividing 30 by 2: $30 \div 2 = 15$, so the length is 15 inches. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option B is incorrect	The student likely did not understand the meaning of “perimeter” and divided 40 inches by 5 inches, resulting in 8 inches. The student needs to focus on understanding the meaning of “perimeter” and how to find the perimeter of a figure.
	Option C is incorrect	The student likely neglected to divide 30 by 2 to find the length of each of the two remaining sides. The student needs to focus on understanding the meaning of “perimeter” and how to find the perimeter of a figure.
	Option D is incorrect	The student likely did not understand the meaning of “perimeter” and subtracted 5 inches from 40 inches, resulting in 35 inches. The student needs to focus on understanding the meaning of “perimeter” and how to find the perimeter of a figure.

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Item Position	Rationale	
19	Option D is correct	To determine which pictograph (a graph that represents data using pictures) shows the data in the table, the student should have used the table given to find the number of pizzas of each size that were sold. Then the student should have looked at each pictograph to see that the key shows that 1 picture of a whole pizza represents 4 pizzas, so the pictographs use multiples of 4. Going back up to the table, the student should have found that 4 small pizzas were sold and that, according to the key, the Small category should have 1 whole pizza to represent the 4 pizzas sold. In the Medium category, 10 pizzas were sold. Since 1 picture of a whole pizza represents 4 pizzas, 2 pictures of a whole pizza would represent 8 pizzas. To account for the 2 remaining pizzas sold, the student should have recognized that if 1 picture of a whole pizza represents 4, then a picture of half a pizza must represent 2 pizzas, since 2 is half of 4. Therefore, the Medium category in the pictograph should show 2 whole pizzas and 1 half pizza. In the Large category, 18 pizzas were sold. Since 4 pictures of a pizza represent 16 pizzas, to account for the 2 remaining pizzas sold, a picture of another half a pizza would be needed. Therefore, the Large category should show 4 whole pizzas and 1 half pizza. In the Extra Large category, 8 pizzas were sold, and 2 pictures of a pizza represent 8 pizzas. Therefore, the Extra Large category should show 2 whole pizzas.
	Option A is incorrect	The student likely used a picture of a whole pizza instead of half a pizza to represent the 2 pizzas in the Medium ($4 + 4 + 2$) and the Large ($4 + 4 + 4 + 4 + 2$) categories. The student needs to focus on understanding how to interpret the key for a pictograph.
	Option B is incorrect	The student likely misread the table and switched the numbers of pizzas sold for the Large and the Extra Large categories. The

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		student needs to focus on attending to details when reading a table.
	Option C is incorrect	The student likely did not recognize that a picture of half a pizza could be used to represent 2 pizzas, and therefore did not account for the 2 extra pizzas in the Medium ($4 + 4 + 2$) and the Large ($4 + 4 + 4 + 4 + 2$) categories. The student needs to focus on understanding how to interpret the key for a pictograph.

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Item Position	Rationale	
20	Option C is correct	To determine how many shelves Steve puts shirts on, the student could have recognized this as a division problem. There are 75 shirts divided into groups of 15, and $75 \div 15 = 5$, meaning that there are 5 shelves. 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 this as an addition problem and calculated $75 + 15 = 90$. The student needs to focus on understanding which operation to use in a word problem.
	Option B is incorrect	The student likely misinterpreted this as a subtraction problem and calculated $75 - 15 = 60$. The student needs to focus on understanding which operation to use in a word problem.
	Option D is incorrect	The student likely found that 5 shelves were needed but erroneously included 1 more shelf for the “15 shirts” in the second sentence: $75 \div 15 = 5$, $5 + 1 = 6$. The student needs to focus on attending to the details of the question.

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Item Position	Rationale	
21	256 and any equivalent values are correct	The student should have recognized that area is the amount of space occupied by a two-dimensional figure, measured in square units. To determine the area of the rectangle in square centimeters, the student first could have used the formula for area, $A = \text{length} \times \text{width}$, to find the total number of squares in the rectangle. The length of the rectangle is 32 rows, and the width of each row is 8 squares, so the rectangle has a total of $32 \times 8 = 256$ squares. Then the student could have multiplied the total number of squares by the given area of each square (one square centimeter): $256 \times 1 \text{ square centimeter} = 256 \text{ square centimeters}$. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.

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22	Option D is correct	To determine the total number of cookies sold on Saturday and Sunday, the student should have recognized that the number of cookies sold on Sunday would be the number of cookies sold on Saturday, 295, plus 88 more cookies ($295 + 88 = 383$). Then the student should have added 295 (for Saturday) and 383 (for Sunday), to get a total of 678 cookies sold.
	Option A is incorrect	The student likely misinterpreted the problem and subtracted, $295 - 88 = 207$. The student needs to focus on understanding which operation to use in a word problem.
	Option B is incorrect	The student likely found only the number of cookies sold on Sunday, $295 + 88 = 383$, without adding it to the number of cookies sold on Saturday. The student needs to focus on attending to the details of the question.
	Option C is incorrect	The student likely added $295 + 295$ and then subtracted 88 instead of adding 88, $(295 + 295) - 88 = 502$. The student needs to focus on understanding which operation to use in a word problem.

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Item Position	Rationale	
23	Options C is correct	To determine which fractions can be represented by point F , the student should have recognized that the number line goes from 0 to 1 and is divided into thirds, making the second tick mark $\frac{1}{3}$, so that point F represents $\frac{1}{3}$.
	Option D is correct	To determine another fraction that can be represented by point F , the student could have found a fraction that is equivalent to (has the same value as) $\frac{1}{3}$. To create an equivalent fraction, the numerator and the denominator must be multiplied or divided by the same number. Since $1 \times 2 = 2$ and $3 \times 2 = 6$, the fraction $\frac{2}{6}$ is equivalent to $\frac{1}{3}$ and can also be represented by point F . 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 that point F represented $\frac{1}{2}$ because it is exactly halfway between two other tick marks, without considering the rest of the number line. The student needs to focus on understanding how to interpret number lines that are divided into fractional units and how to name points on a number line.
	Option B is incorrect	The student likely determined that point F represented $\frac{2}{3}$ because it is on the second tick mark out of the first three, without considering the rest of the number line. The student needs to focus on understanding how to interpret number lines that are divided into fractional units and how to name points on a number line.
	Option E is incorrect	The student likely determined that point F represented $\frac{2}{4}$ because it is on the second tick mark out of a total of 4 hash marks on the number line. The student needs to focus on understanding how to interpret number lines

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		that are divided into fractional units and how to name points on a number line.
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Item Position	Rationale	
24	Option C is correct	To determine which statement is an example of using credit, the student should have recognized that credit is used when a need exceeds the ability to pay for an item, so that a person must borrow money from a lender. Maria borrows \$400 for car repairs.
	Option A is incorrect	The student likely confused using credit with building savings. The student needs to focus on understanding what credit is and why a consumer would use credit.
	Option B is incorrect	The student likely confused using credit with responsible spending (creating and maintaining a budget). The student needs to focus on understanding what credit is and why a consumer would use credit.
	Option D is incorrect	The student likely confused using credit with earning money for working. The student needs to focus on understanding what credit is and why a consumer would use credit.

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Item Position	Rationale
25 more of a milkshake than, sixths are larger than eighths	To compare the amounts that Serena and Ricky drink from their milkshakes, the student could have drawn two fraction bars of equivalent length to represent the two (same-size) milkshakes. Then the student should have divided the first fraction bar into 6 equal-sized pieces, shading 5 to represent $\frac{5}{6}$, the fraction of a milkshake that Serena drinks. The student should have divided the second fraction bar into 8 equal-sized pieces, shading 5 to represent $\frac{5}{8}$, the fraction of a milkshake that Ricky drinks. Because the same number of parts are shaded in each fraction bar, but the parts of Serena's fraction bar are larger, Serena drinks more of a milkshake than Ricky because sixths are larger than eighths. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.

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Item Position	Rationale	
26	Option C is correct	To determine which equation can be used to find how many flowers Eva sells, the student should have recognized that the first step is finding the number of flowers that Eva puts in each vase. If there are 72 flowers divided equally by 8, the quotient is the number of flowers in each vase; therefore, the first step is dividing 72 by 8 ($72 \div 8 = 9$). Then the student could have determined that to find the total number of flowers in all 3 vases, the number of flowers in each vase, 9, should be multiplied by the number of vases, 3, resulting in a product of 27. Therefore, the equation can be written by doing the steps in order, divide and then multiply: $72 \div 8 \times 3 = 27$.
	Option A is incorrect	The student likely did the first step, dividing 72 by 8, correctly, but instead of multiplying 9 flowers in each vase by 3 vases, the student divided 9 by 3, and so combined $72 \div 8 = 9$ and $9 \div 3 = 3$ to get the final equation. The student needs to focus on understanding which operations to use in a word problem.
	Option B is incorrect	The student likely subtracted instead of dividing on the first step and subtracted instead of multiplying on the second step: $72 - 8 = 64$, $64 - 3 = 61$. The student needs to focus on understanding which operations to use in a word problem.
	Option D is incorrect	The student likely did the first step, dividing 72 by 8, correctly, but instead of multiplying by 3 vases, the student added 3: $72 \div 8 = 9$, $9 + 3 = 12$. The student needs to focus on understanding which operations to use in a word problem.

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Item Position	Rationale	
27	more than 5 faces, triangular bases	<p>To determine how Rashida grouped the figures, the student should have recognized that the only attribute the figures in Group A share from among the listed answer choices is having more than 5 faces (the flat surfaces of a three-dimensional figure). The hexagonal prism has 8 faces (1 on the top, 1 on the bottom, and 6 around the figure), and the rectangular prism has 6 faces (1 on the top, 1 on the bottom, and 4 around the figure). In Group B, both figures have 5 faces. The equilateral triangular prism has 5 faces (1 on each end and 3 around the figure), and the right triangular prism has 5 faces (1 on each end and 3 around the figure). Then the student should have recognized that the only attribute that the figures in Group B share from among the listed answer choices is that they have triangular bases. In Group A, neither of the figures has a triangular base.</p>

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Item Position	Rationale	
28	Option B is correct	To determine how many pencils the teacher bought, the student could have recognized that if there are 8 boxes, each containing 48 pencils, multiplying 48 by 8 would result in the total number of pencils: $48 \times 8 = 384$. 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 multiplied 48 by 8 correctly but subtracted 8 from the product, $384 - 8 = 376$. The student needs to focus on understanding the purpose of each number in a word problem.
	Option C is incorrect	The student likely made errors when multiplying 48 by 8. Using the standard algorithm, the student likely multiplied 8×8 and placed the 6 (from 64) in the ones place and regrouped the 4; instead, the 4 should have been placed in the ones place, and the 6 should have been regrouped. The student then likely multiplied 40×8 , added the 4 that was regrouped (320 + 40), and placed the answer (36) in the hundreds and tens places, resulting in 366 (with the 6 in the ones place). The student needs to focus on multiplication with regrouping.
	Option D is incorrect	The student likely made errors when multiplying 48 by 8. Using the standard algorithm, the student likely multiplied in the ones place correctly: $8 \times 8 = 64$. The student then likely placed the 4 from 64 in the ones place but did not carry the 6 over to the tens place when multiplying 40×8 ; the student multiplied 4×8 to get 32 for the hundreds and tens place, resulting in 324 (with the 4 in the ones place). The student needs to focus on multiplication with regrouping.

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Item Position	Rationale	
29	Option D is correct	To determine which unit of measurement could be used to measure the volume of juice in the bottle, the student should have recalled which units are used for measuring liquid volume (amount of space taken up by a liquid). The student could have referred to the units shown in the Volume and Capacity section of the STAAR Grade 3 Mathematics Reference Materials and recognized that “Liters” is the only answer option that is a unit of volume. 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 confused volume and weight and chose the unit of measurement used to measure weight. The student needs to focus on determining which units of measurement are used for volume.
	Option B is incorrect	The student likely confused volume with length or width and chose a unit of measurement used to measure length and width. The student needs to focus on determining which units of measurement are used for volume.
	Option C is incorrect	The student likely confused volume with length or width and chose a unit of measurement used to measure length and width. The student needs to focus on determining which units of measurement are used for volume.

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Item Position	Rationale
30	ten thousands, hundreds,tens To determine an expression equivalent to 40,280, the student could have broken 40,280 into place values. Since this is a five-digit number, the greatest place value (starting on the left) is ten thousands. The digit 4 in the ten-thousands place means 4 ten thousands. To the right of the ten-thousands place is the thousands place. The digit 0 means that there are 0 thousands, so this digit would not be represented in the expression. To the right of the thousands place is the hundreds place. The digit 2 in the hundreds place means 2 hundreds. To the right of the hundreds place is the tens place. The digit 8 in the tens place means 8 tens. To the right of the tens place is the ones place. The digit 0 means that there are 0 ones, so this digit would not be represented in the expression. When put together, the expression becomes 4 ten thousands + 2 hundreds + 8 tens. This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.