Item #	Rationale	
1	Option C is correct	To determine which statement is true, the student could have compared the digits in each place value for each number. Since 730 and 806 both have three digits, the student could have compared the digits in the hundreds place (leftmost digit), 730 and 806, and determined that since 7 is less than 8, the number 730 is less than 806 (730 < 806).
	Option A is incorrect	The student likely compared only the digits to the right of the first digit in each number, determining that 8 is greater than 4 (8 > 4). The student needs to focus on understanding how to compare numbers that have different numbers of digits.
	Option B is incorrect	The student likely misinterpreted the “>” to mean “less than” instead of “greater than.” The two numbers have the same digit, 5, in the hundreds place so the student could have then compared the digits in the tens place. The number 571 has a 7 in the tens place, and the number 582 has an 8 in the tens place. Since 7 < 8 (7 is less than 8), 571 is less than 582 (571 < 582).

Texas Education Agency
Student Assessment Division

2022 STAAR Grade 3 Mathematics Rationales

Item #	Rationale
4	s

Item #		Rationale
5	64 and any equivalent values are correct	To determine the area (amount of space covered) of the floor in square feet, the student could have determined that the number of rows (4) and the number of carpet squares in each row (16) represent the dimensions of the floor. The student then could have multiplied 16 by 4 (16 × 4 = 64). Because the floor can be covered with 64 carpet squares, it represents an mus .6qalqcuus .6n e10.02 230.28 531 Tm3.7

Item #	Rationale	
6	Option G is correct	To determine the correct dot plot (graph that uses dots to display data), the student could have

Item #	Rationale	
8	Option H is correct	To determine which word best describes the figures, the student should have recognized that in each figure, exactly two sides are parallel, which is an attribute of a trapezoid.
	Option F is incorrect	The student likely confused a rectangle (where all angles are 90° and opposite side lengths are equal) with a trapezoid. The student needs to focus on understanding the attributes of quadrilaterals.
	Option G is incorrect	The student likely confused a rhombus (where all side lengths are equal and opposite sides are parallel) with a trapezoid. The student needs to focus on understanding the attributes of quadrilaterals.
	Option J is incorrect	The student likely confused a parallelogram (where opposite sides are parallel and opposite side lengths are equal) with a trapezoid. The student needs to focus on understanding the attributes of quadrilaterals.

2022 STAAR Grade 3 Mathematics Rationales

Item #	Rationale

Item #	Rationale	
10	Option J is correct	To determine which expression is equivalent to the fraction of the seats that have children sitting in them, the student could have first determined the fraction of the model represented by each seat. Because there are a total of 8 seats, each seat is $\frac{1}{8}$ of the seats in the movie theater. The student then should have counted the number of children sitting in seats and written an expression that represents the fraction of seats that have children sitting in them. Because there are 3 children sitting in seats and each seat is $\frac{1}{8}$ of the seats in the row, the total fraction of seats with children sitting in them can be expressed as $\frac{1}{8} \quad \frac{1}{8} \quad \frac{1}{8}$.
	Option F is incorrect	The student likely formed the fraction representing each seat $\frac{1}{8}$ correctly but then incorrectly counted all the seats in the row instead of just the seats with children sitting in them. The student needs to focus on understanding how to determine the denominator (bottom number of a fraction) of the fraction represented by a given model.
	Option G is incorrect	The student likely formed the fractions by using the total number of children in the row instead of the total number of seats in the row as the denominator (bottom number of a fraction). The student needs to focus on understanding how to determine the numerator (top number of a fraction) and denominator (bottom number of a fraction) of the fraction represented by a given model.
	Option H is incorrect	The student likely recognized that $\frac{3}{8}$ of the seats in the movie theater had children sitting in them but did not recognize that only one instance of $\frac{3}{8}$ was needed in the expression. The student needs to focus on understanding how to determine the numerator (top number of a fraction) and denominator (bottom number of a fraction) of the fraction represented by a given model.

Item #	Rationale	
12	Option F is correct	To determine which model can be used to find the total number of cards, the student could have understood that the strip diagram should use equal-sized sections to model the multiplication problem 3 × 10. The strip diagram shows 3 equal

2022 STAAR Grade 3 Mathematics Rationales

Item #	Rationale
13	Option

Item #	Rationale	
15	Option D is correct	To determine what fraction of the package of baseballs each person received, the student could have calculated the number of baseballs each person received. The 8 baseballs were shared equally by 2 people; therefore, each person received 4 out of the 8 baseballs. The fraction represents 4 out of 8.

Item #	Rationale
30 r (tm) 18 ml (l) 4.6 (m) 3 h (correct) (0	To determine the area of (amount of space covered by the entire poster in square inches, the student

Item #	Rationale	
21	Option B is correct	To determine which model can be used to find the number of function keys on the computer keyboard, the student should have recognized that, when the number of letter keys (26), the number of special symbol keys (21), and the number of function keys (unknown, ?), are added, the sum should be 87. This model shows that the entire length of the rectangle, 87 (total number of keys on the computer keyboard), is equal to the combined length of the smaller rectangles: 26 (letter keys), 21 (special symbol keys), and ? (function keys).
	Option A is incorrect	The student likely recognized that, when the number of letter keys, the number of special symbol keys, and the number of function keys are added, the sum should be 87. However, the student likely reversed the sections for special symbol keys and function keys when setting up the model. The student needs to focus on understanding how pictorial models are used to represent addition and subtraction problems.
	Option C is incorrect	The student likely recognized that, when the number of letter keys, the number of special symbol keys, and the number of function keys are added, the sum should be 87. However, the student likely overlapped the sections for special symbol keys and letter keys when setting up the model. The student needs to focus on understanding how pictorial models are used to represent addition and subtraction problems.

Item #		Rationale
22	Option J is correct	To determine the figure that is **NOT** a prism, the student could have identified the attributes (characteristics) of a prism: (1) bases (sides) that are polygons (closed shapes with at least three sides), (2) bases that are the same size and shape, (3) bases that are parallel to each other (never touch), and (4) bases that are connected by rectangles. The first figure is a prism because it has square bases that are parallel to each other, are the same size, and are connected by rectangles. The second figure is a prism because it has triangular bases that are parallel to each other, are the same size and shape, and are connected by rectangles. The third figure is a prism because it has rectangular bases that are parallel to each other, are the same size and shape, and are connected by rectangles

Item #	Rationale	
23	Option A is correct	To determine the unknown number (the empty square), the student could have recognized that division is the inverse (opposite) operation of multiplication and divided 98 by 7 (98 ÷ 7 = 14). 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 subtracted 7 from 98 instead of dividing. The student needs to focus on

Item #	Rationale	
24	745 and any equivalent values are correct	To determine a number that is equivalent to the expression, the student should have put the digits from the expression in place-value order. From left to right, the place-value order is hundreds place, tens place, and ones place. The student should have used the 7 in the hundreds place for the 700 in the expression, a 4 in the tens place for the 40 in the expression, and a 5 in the ones place for the 5 in the expression (745). This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.

Item #	Rationale	
26	Option F is correct	To determine the fraction equivalent to $\frac{2}{4}$, the student could have shaded 2 of the 4 parts in the fourth row of the strip diagram to represent $\frac{2}{4}$ and 1 of the 2 parts in the second row of the strip diagram to represent $\frac{1}{2}$. The student then could have recognized that since the strip diagrams are the same size and the shaded area of the fourth row is the same as the shaded area of the second row, the fractions represented are equivalent.
	Option G is incorrect	The student likely recognized that the numerators (top numbers of the fractions) are the same and ignored the denominators (bottom numbers of the fractions). The student needs to focus on understanding how to represent equivalent fractions on strip diagrams.
	Option H is incorrect	The student likely recognized that the denominators (bottom numbers of the fractions) are the same and ignored the numerators (top numbers of the fractions). The student needs to focus on understanding how to represent equivalent fractions on strip diagrams.
	Option J is incorrect	The student likely shaded 2 of the 6 parts in the fifth row instead of shading 2 of the 4 parts in the fourth row. The student needs to focus on understanding how to represent equivalent fractions on strip diagrams.

Item #	Rationale	
27	Option C is correct	To determine which statement is true, the student could have determined the relationship between each number of tickets and its corresponding (paired) number of rides in the table. To determine the relationship, the student could have noticed that each number of tickets is divided by 2 to get the number of rides (6 ÷ 2 = 3, 12 ÷ 2 = 6, 18 ÷ 2 = 9, and 24 ÷ 2 = 12). The student could have then concluded that Shelly needs 2 tickets for each ride because the number of tickets divided by 2 equals the number of rides.
	Option A is incorrect	The student likely used the first row of numbers and determined that the difference between the number of tickets and the number of rides is 3 (6 – 3 = 3). The student needs to focus on understanding relationships between number pairs in a table.
	Option B is incorrect	The student likely used the first row of numbers and determined that the difference between the number of tickets and the number of rides is 3 (6 – 3 = 3) but reversed the relationship from subtraction to addition. The student needs to focus on understanding relationships between number pairs in a table.
	Option D is incorrect	The student likely determined that each number of tickets is divided by 2 to get the number of rides

Item #	Rationale	
30	Option F is correct	To determine the total number of golf balls bought, the student could have added the number of packages containing pink golf balls (4) and the number of packages containing orange golf balls (2) and then multiplied the sum by the number of golf balls in each package (12) (4 + 2 = 6; 12 × 6 = 72). This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.
	Option G is incorrect	The student likely multiplied 12 by 4 and then added 2 (12 × 4 = 48; 48 + 2 = 50). The student needs to focus on understanding the mathematical operations (+, –, ×, ÷) needed to solve multistep, real-world problems.
	Option H is incorrect	The student likely multiplied the numbers in the problem (4 × 2 = 8; 8 × 12 = 96). The student needs to focus on understanding the mathematical operations (+, –, ×, ÷) needed to solve multistep, real-world problems.
	Option J is incorrect	The student likely added the numbers in the problem (4 + 2 + 12 = 18). The student needs to focus on understanding the mathematical operations (+, –, ×, ÷) needed to solve multistep, real-world problems.

Texas Education Agency
Student Assessment Division