

The following pages include the answer key for all machine-scored items, followed by the rubrics for the hand-scored items.

- The rubrics show sample student responses. Other valid methods for solving the problem can earn full credit unless a specific method is required by the item.
- In items where the scores are awarded for full and partial credit, the definition of partial credit will be confirmed during range-finding (reviewing sets of real student work).
- If students make a computation error, they can still earn points for reasoning or modeling.

Item Number	Answer Key	Evidence Statement Key
1.	1.07	7.RP.2b
2.	D	7.RP.2c
3.	24	7.RP.2b
4.	A, D, E	7.EE.1
5.	C	7.NS.1c-1
6.	D	7.NS.2b-2
7.	D	7.RP.1
8.	C	7.RP.2a
9.	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Numeric Expression: $14(100) + 6(-30)$ Total number of points the player earned: 1220 </div> NOTE: or equivalent expression	7.EE.3
10.	Part A: <div style="text-align: center; margin: 10px 0;"> 3 <i>g</i> + 2.50 = 13.75 </div> Part B: 3.75	7.EE.4a-1

11.	See rubric	7.D.1
12.	See rubric	7.C.5
13.	See rubric	7.C.5
14.	See rubric	7.C.6.1
15.	Part A: See rubric Part B: See rubric Part C: See rubric Part D: See rubric	7.D.2
16.	Part A: See rubric Part B: See rubric	7.C.8
17.	See rubric	7.D.4

#11 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ Correctly calculates how much money was earned on Monday: \$158 • Modeling component = 2 points <ul style="list-style-type: none"> ○ Correctly models a process for determining the total number of hours worked <p style="margin-left: 20px;">Note: It is not necessary to show the total hours of 9.25 if the two correct subtotals are given.</p> <ul style="list-style-type: none"> ○ Correctly models a process for determining the total dollar amount earned, including overtime <p>Sample Student Response</p> <p>Rita worked from 8:15 a.m. to 12:45 p.m., or $4\frac{1}{2}$ hours before lunch. She worked from 1:30 p.m. to 6:15 p.m., or $4\frac{3}{4}$ hours after lunch. The total time Rita worked on Monday was $4\frac{1}{2} + 4\frac{3}{4} = 9\frac{1}{4}$ hours.</p> <p>Rita worked $1\frac{1}{4}$ hours beyond 8 hours, so she is paid overtime for that time. Rita is paid \$16 per hour for the first 8 hours she worked and $(\\$16)(1\frac{1}{2}) = \\24 per hour for the $1\frac{1}{4}$ overtime hours she worked. The total dollar amount she earned on Monday is $\\$16(8) + \\$24(1\frac{1}{4}) = \\$128 + \\$30 = \\$158$.</p> <p>Notes:</p> <ul style="list-style-type: none"> ○ The student may receive a total of 2 modeling points if the modeling processes are correct but the student makes one or two computational errors resulting in an incorrect answer. ○ The student may receive a total of 1 modeling point if the modeling processes are correct but the student makes more than two computational errors resulting in an incorrect answer.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#12 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none">• Computation component = 1 point<ul style="list-style-type: none">○ Correctly determines that each sandwich costs \$5.50• Reasoning component = 2 points<ul style="list-style-type: none">○ Correctly describes the error Matt made when he solved the equation○ Shows the corrected steps for solving the equation <p>Sample Student Response</p> <p>“Matt did not correctly use the distributive property when he simplified $4(x + 2)$ and changed it to $4x + 2$. Both the x and the 2 should be multiplied by 4, so he should have written $4x + 8$.”</p> $4(x + 2) = 30$ $4x + 8 = 30$ $4x = 22$ $x = 5.50$ <p>Notes:</p> <ul style="list-style-type: none">○ The student must describe the error made and fix the error in order to receive full reasoning credit.○ If the student only describes the error made or fixes the error without describing it, student will receive at most 1 reasoning point.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#13 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none">• Computation component = 1 point<ul style="list-style-type: none">○ Correctly determines the value of x• Reasoning component = 2 points<ul style="list-style-type: none">○ Correctly uses an equation to determine the monthly savings goal○ Correctly writes a sentence to explain the solution <p>Sample Student Response</p> $350 = 12(x + 20)$ $29.\overline{16} = x + 20$ $9.\overline{16} = x$ $\$9.17 \approx x$ <p>The student has to save an additional \$9.17 per month to reach his goal of saving \$350 in 12 months.</p>
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#14 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none">• Computation component = 1 point<ul style="list-style-type: none">○ Correctly determines the constant of proportionality as 1.25 or equivalent• Reasoning component = 2 points<ul style="list-style-type: none">○ Correctly explains why the student’s reasoning is incorrect○ Correct work or explanation for calculating the constant of proportionality <p>Sample Student Response</p> <p>The student’s reasoning is incorrect because he or she used subtraction between only one quantity to find the constant of proportionality. Since the table is proportional, the ratio between the y and x values will be the same. This will be the constant of proportionality.</p> $y/x = 10/8 = 1.25$ $y/x = 7.5/6 = 1.25$ <p>The constant of proportionality is 1.25.</p> <p>Note: One example of correct work is sufficient for credit.</p>
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

#15 Part A	
Score	Description
1	<p>Student response includes the following element.</p> <ul style="list-style-type: none"> • Modeling component = 1 point <ul style="list-style-type: none"> ○ Machine Scored: Correctly models the equation $y = \frac{1}{4}x$ OR other equivalent equation.
0	Student response is incorrect or irrelevant.
#15 Part B	
Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Computation component = 2 points <ul style="list-style-type: none"> ○ Machine Scored: 5/4 in the cell corresponding to 5 oranges ○ Machine Scored: 24 in the cell corresponding to 6 cups of juice
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.
#15 Part C	
Score	Description
1	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Modeling component = 1 point <ul style="list-style-type: none"> ○ Correctly models a strategy to find the unknown number of cups of orange juice in the table ○ Correctly models a strategy to find the unknown number of oranges in the table <p>Note: The same explanation can be used for both parts. The general explanation of each orange being equal to $\frac{1}{4}$ cup is an accurate strategy for determining both unknown numbers in the table.</p> <p>Sample Student Response:</p>

	<p>Using my equation, $y = \frac{1}{4} x$, when $x = 5$ oranges, $y = 5/4$ cups of orange juice.</p> <p>The equation indicates that 4 oranges are squeezed to make 1 cup of juice. To make 6 cups of orange juice, $6(4) = 24$ oranges are squeezed.</p>
0	Student response is incorrect or irrelevant.
#15 Part D	
Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ Correctly calculates the number of bags of oranges needed: 4 bags • Modeling component = 1 point <ul style="list-style-type: none"> ○ Correctly models a strategy to determine the number of bags of oranges needed <p>Note: In general, there are three main necessary components for showing a complete strategy: providing the number of cups needed to produce a half gallon [8], the number of oranges needed to produce 8 cups [32], and showing understanding that partial bags cannot be purchased.</p> <p>Sample Student Response:</p> <p>In $\frac{1}{2}$ gallon, there are 2 quarts, or 4 pints, or 8 cups.</p> <p>To make 1 cup of juice, 4 oranges are needed. So, a total of $8(4) = 32$ oranges are needed to make $\frac{1}{2}$ gallon of juice. Each bag contains 10 oranges. When I divide 32 by 10, I get a quotient of 3 and a remainder of 2. This means that Abby needs 4 bags because 3 bags will only contain 30 oranges. She needs the fourth bag to have enough oranges.</p>
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#16 Part A

Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ Correct computation, numerical support, or graphical support that is consistent with the student's reasoning • Reasoning component = 1 point <ul style="list-style-type: none"> ○ Correctly reasons that the lengths of the sides of the quadrilateral $JKLM$ are not all the same, so it cannot be a square <p>Sample Student Response:</p> <p>In a square, the lengths of all four sides are the same. If quadrilateral $JKLM$ is a square, all four of its side lengths would be the same. Since the y-coordinates are the same in points J and K, the side length of JK is the positive difference between the x-coordinates of each point. So, $JK = -4.5 - (-1.2) = -4.5 + 1.2 = -3.3 = 3.3$ units. Similarly, the side length of KL is the positive difference between the y-coordinates of each point. So, $KL = 3 - 8.7 = -5.7 = 5.7$ units. The lengths of two sides of the quadrilateral are not equal, so quadrilateral $JKLM$ is not a square.</p> <p>Notes:</p> <ul style="list-style-type: none"> ○ The student may still receive credit for this part if the student chooses to compute or compare side lengths without using absolute values. ○ The student may receive a total of 1 point for Part A if the reasoning processes are correct but the student makes one or more computational errors resulting in incorrect answers or an incorrect conclusion. ○ Student may receive the 1 computation point if the correct answer is computed but shows no work or insufficient work to indicate a correct reasoning process.
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#16 Part B

Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> ○ Computation component = 1 point <ul style="list-style-type: none"> ○ Correct new coordinates for points L and M ○ Reasoning component = 1 point <ul style="list-style-type: none"> ○ Correctly reasons why the two new coordinates of points L and M would make quadrilateral JKLM a square <p>Note: Numerical or graphical support that is consistent with the student’s reasoning is acceptable for full credit.</p> <p>Sample Student Response:</p> <p>The given coordinates form a rectangle with sides JK and LM both 3.3 units and sides KL and JM both 5.7 units. If the coordinates of points L and M change so that quadrilateral $JKLM$ is a square, they should be lowered on the coordinate plane $5.7 - 3.3$, or 2.4 units. This will change sides KL and JM from 5.7 units to 3.3 units, making the resulting quadrilateral a square. Lowering points on a coordinate plane changes their y-coordinates. So, the new coordinates of point L would be $(-1.2, 6.3)$ since $8.7 - 2.4$, or 6.3. The new coordinates of point M would be $(-4.5, 6.3)$ since $8.7 - 2.4$, or 6.3 units.</p> <p>Notes:</p> <ul style="list-style-type: none"> ○ The student should receive credit for this part if the student chooses new coordinates for points L and M that are below points J and K, as long as the student shows or explains that the side lengths of all four sides are the same length. ○ The student may receive a total of 1 point for Part B if the reasoning processes are correct but the student makes one or more computational errors resulting in incorrect answers or an incorrect conclusion. ○ The student may receive the 1 computation point if the correct answer is computed but shows no work or insufficient work to indicate a correct reasoning process.
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#17 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none">• Computation component = 1 point<ul style="list-style-type: none">○ The student correctly determines the approximate number of people who will receive a small prize. Accept a range from 900 to 1,200 people.• Modeling component = 2 points<ul style="list-style-type: none">○ The student correctly models a valid estimation strategy for determining the number of people who will attend this year's fair. Accept a range of 14,000 to 17,000.○ The student correctly models finding the approximate number of people who will receive a prize. <p>Sample Student Response</p> <p>I saw that the attendance was increasing each year and found the average amount that it increased by each year. $(1,087 + 1,763 + 1,176)/3 = 4,026/3$ So I estimate that the attendance this year will increase by about 1,342 people and will be 14,646 people.</p> <p>20% of 14,646 is $0.20(14,468) = 2,929.2$</p> <p>1/3 of 2,929.2 is $(2,929.2) (1/3) = (2929.2)/3 = 976.4$</p> <p>So about 976 people will receive a small prize.</p> <p>Note: Accept other valid estimation strategies for determining this year's attendance.</p>
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.