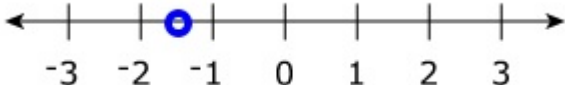


The following pages include the answer key for all machine-scored items, followed by the rubrics for the hand-scored items.

- 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.	54	6.RP.2																		
2.	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Above Freezing</th> <th>Below Freezing</th> </tr> </thead> <tbody> <tr> <td>0.5° C</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>–13° C</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>100° C</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>5.5° C</td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>–2.25° C</td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table>	Temperature	Above Freezing	Below Freezing	0.5° C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	–13° C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	100° C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	5.5° C	<input checked="" type="checkbox"/>	<input type="checkbox"/>	–2.25° C	<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.NS.5
Temperature	Above Freezing	Below Freezing																		
0.5° C	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
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5.5° C	<input checked="" type="checkbox"/>	<input type="checkbox"/>																		
–2.25° C	<input type="checkbox"/>	<input checked="" type="checkbox"/>																		
3.	B	6.NS.1-2																		
4.	 <p>A number line is shown with arrows at both ends. It has tick marks and labels for integers from -3 to 3. A blue circle is placed on the line between -2 and -1, representing the number -1.5.</p>	6.NS.6a																		
5.	D	6.EE.1-1																		
6.	164340	6.EE.2c-1																		
7.	B	6.EE.2a																		
8.	B	6.EE.5-1																		

9.	Part A: 40 Part B: 9	6.RP.3a
10.	$7n = 8.61$ $n = \$1.23$	6.EE.7
11.	See Rubric	6.D.3
12.	See Rubric	6.C.3
13.	Part A: See Rubric Part B: See Rubric	6.C.4
14.	See Rubric	6.C.9
15.	See Rubric	6.C.3
16.	Part A: See Rubric Part B: See Rubric	6.D.2
17.	Part A: See Rubric Part B: See Rubric	6.D.1

#11 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none">• Modeling component = 2 points<ul style="list-style-type: none">○ The student models a strategy for developing a reasoned estimate for an appropriate length and width of each cereal bar, including explaining assumptions.○ The student models a strategy for determining the amount each cereal bar will cost Megan to make.• Computation component = 1 point<ul style="list-style-type: none">○ The student provides the amount each cereal bar will cost. <p>Sample Student Response:</p> <p>I assume that each bar could be 2 inches by 4 inches. This is a reasonable size for a cereal bar and is easy enough to hold and does not appear to be too large a serving size. The cereal bar can also be cut so that all cereal bars are the same size and shape since 24 inches and 16 inches can be evenly divided by 2 inches and 4 inches.</p> <p>For the 1 pan of bars cut so each bar is 2 inches by 4 inches, there would be 6 rows of bars ($24 \div 4$) and 8 bars in each row ($16 \div 2$). Altogether, that would make 48 bars for each pan. The amount spent on ingredients is \$9.85, so the amount each cereal bar will cost Megan to make is $\\$9.85 \div 48$, which is \$0.205... or about \$0.21.</p> <p>Notes:</p> <ul style="list-style-type: none">○ Other reasoned estimates are possible. As long as the modeling steps are valid, credit should be awarded.○ The student may receive a combined total of 2 points if the modeling processes are correct but the student makes one or more computational errors resulting in incorrect answers.○ The student may receive a total of 1 point if he/she computes the correct answer but shows no work or insufficient work to indicate a correct modeling process.
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
4	<p>Student response includes each of the following 4 elements.</p> <ul style="list-style-type: none">• Reasoning component = 3 points<ul style="list-style-type: none">○ Correct explanation of how to find the number of sheets in a stack using the ruler○ Correct expression or equation that can be used to find the number of sheets, $2\frac{1}{4} \div \frac{3}{16}$ or equivalent○ Correct explanation of how expression relates to use of the ruler• Computation component = 1 point<ul style="list-style-type: none">○ Correct number of sheets of cardboard in a stack, 12 <p>Sample Student Response:</p> <p>To find the number of sheets in a stack using the ruler, you start at $2\frac{1}{4}$ inches on the ruler. Then you can mark off groups of $\frac{3}{16}$. This is 3 of the 16ths marks on the ruler. Then you can count the number of groups. There were 12 groups, so there are 12 sheets in a stack.</p> <p>An expression that represents this is $2\frac{1}{4} \div \frac{3}{16}$. This relates to using the ruler because you are starting with $2\frac{1}{4}$ and dividing by $\frac{3}{16}$, which is really finding how many groups of $\frac{3}{16}$ there are in $2\frac{1}{4}$. When you divide, you will get 12, which means there are 12 groups of $\frac{3}{16}$ in $2\frac{1}{4}$.</p>
3	Student response includes 3 of the 4 elements.
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#13 Part A

Score	Description
2	<p>Student response includes each of the following 2 elements.</p> <ul style="list-style-type: none">• Reasoning component = 1 point<ul style="list-style-type: none">○ Correct work shown or explanation given using the number line• Computation component = 1 point<ul style="list-style-type: none">○ Correct distance of each point from Q (0.3 for R and 0.6 for P) <p>Sample Student Response: Point R is 0.3 unit from point Q, because there are 3 spaces of 0.1 between them on the number line. Point P is 0.6 unit from point Q, because there are 6 spaces of 0.1 between them on the number line.</p>
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

#13 Part B

Score	Description
1	<p>Student response includes the following element.</p> <ul style="list-style-type: none">• Reasoning component = 1 point<ul style="list-style-type: none">○ Correct explanation of how to find point S on the number line <p>Sample Student Response: Since point Q is at 0 and since point S is the same distance from point Q as point R but in a different location, it must be on the opposite side of point Q. Points R and S are on opposite sides of 0 on the number line, so their locations should have opposite signs. Since point R is located at 0.3, point S must be located at -0.3.</p> <p>Note: Point S can also be located at 0.3 for credit with a valid explanation.</p>
0	Student response is incorrect or irrelevant.

#14 Rubric

Score	Description
4	<p>Student response includes the following 4 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 2 points <ul style="list-style-type: none"> ○ The student correctly explains why Pattern A is incorrect. ○ The student correctly explains why Pattern B is incorrect. • Computation component = 2 points <ul style="list-style-type: none"> ○ The student provides the correct values for Pattern A. ○ The student provides the correct values for Pattern B. <p>Sample Student Response:</p> <p>The student added zeros to the right of the number, instead of moving the number up one place value.</p> <p>The student added zeros to the left of the decimal portion of the number, instead of moving the number down one place value.</p> <p>For pattern A</p> $3.675 \cdot 10 = 36.75$ $3.675 \cdot 100 = 367.5$ $3.675 \cdot 1,000 = 3,675$ <p>For pattern B</p> $3.675 \cdot 0.1 = 0.3675$ $3.675 \cdot 0.01 = 0.03675$ $3.675 \cdot 0.001 = 0.003675$ <p>Note: Other valid reasoning exists. As long as the student explains the flaw in the provided work, credit should be awarded.</p>
3	Student response includes 3 of the 4 elements.
2	Student response includes 2 of the 4 elements.
1	Student response includes 1 of the 4 elements.
0	Student response is incorrect or irrelevant.

#15 Rubric

Score	Description
3	<p>Student response includes the following 3 elements.</p> <ul style="list-style-type: none">• Reasoning component = 3 points<ul style="list-style-type: none">○ Correct explanation of relationship between work of Student 1 and work of Student 2 in step 1○ Correct explanation of relationship between work of Student 1 and work of Student 2 in step 2○ Correct explanation of relationship between work of Student 1 and work of Student 2 in step 3 <p>Sample Response:</p> <p>In step one, Student 1 represents $4\frac{1}{2}$ as five congruent figures, four of which are shaded entirely and one of which is shaded by half. In step two, Student 1 breaks every whole into four congruent parts, maintaining the original shading. Student 2 makes common denominators for $\frac{1}{2}$ and $\frac{3}{4}$, changing $4\frac{1}{2}$ to $4\frac{2}{4}$. Both students relate $4\frac{1}{2}$ as groups of 4. In step three, Student 1 groups the congruent figures into 6 groups of 3, which represents the value of $4\frac{1}{2} \div \frac{3}{4}$. Student 2 converts $4\frac{2}{4}$ into $\frac{18}{4}$, which is the number of grouped figures drawn by Student 1.</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.

#16 Part A

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"> ○ Correct total number of cups of water • Modeling component = 2 points <ul style="list-style-type: none"> ○ Correct expression using addition and multiplication ○ Correct process for evaluating the expression written <p>Sample Student Response:</p> <p>3 (cups)</p> $6 \times \frac{1}{8} + 2 \times \frac{1}{4} + 3 \times \frac{3}{8} + 1 \times \frac{5}{8}$ $6 \times \frac{1}{8} + 2 \times \frac{1}{4} + 3 \times \frac{3}{8} + 1 \times \frac{5}{8} =$ $\frac{6}{8} + \frac{2}{4} + \frac{9}{8} + \frac{5}{8} =$ $\frac{6}{8} + \frac{4}{8} + \frac{9}{8} + \frac{5}{8} = \frac{24}{8} = 3$ <p>Notes:</p> <ul style="list-style-type: none"> ○ The student must show operations of addition AND multiplication in order to receive the modeling point. If students only use addition, they do not get the modeling point. ○ The student must show only one expression to receive this modeling point. ○ If the student writes an incorrect expression but shows a correct process for evaluating that expression, the student will receive 1 modeling 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.

#16 Part B

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"> ○ Correct total number of fluid ounces in the beaker before the water was poured by the 12 students, 56 fluid ounces • Modeling component = 2 points <ul style="list-style-type: none"> ○ Correct process for finding the amount of water in the beaker ○ Correct process for converting gallons and cups to fluid ounces <p>Sample Student Response:</p> <p>The amount of water in the beaker can be found by adding 3 cups to a $\frac{1}{4}$ gallon. To convert $\frac{1}{4}$ gallon to fluid ounces, I need to multiply by 128, which is 32 fluid ounces. To convert 3 cups to fluid ounces, I need to multiply by 8, which is 24 fluid ounces. The amount of water in the beaker before the water was poured out is $32 + 24 = 56$ fluid ounces.</p> <p>Notes:</p> <ul style="list-style-type: none"> ○ Units are not required to receive credit. ○ The student may receive a combined total of 4 points if the modeling processes are correct but the student makes one or more computational errors resulting in incorrect answers. ○ The student may receive a total of 2 points if he or she computes the correct answers but shows no work or insufficient work to indicate a correct modeling process. ○ The student cannot receive more than 2 points for modeling if the explanations, while sufficient to indicate that the student had a correct process, contain nonsense statements, such as $\frac{1}{4} \times 128 = 32 + 24 = 56$.
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.

#17 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">○ Correct expression that represents the total amount of money raised <p>Sample Student Response:</p> <p>15x</p> <p>Note: Any valid equivalent expression can receive credit.</p>
0	Student response is incorrect or irrelevant.

#17 Part B

Score	Description
2	<p>Student response includes the following elements.</p> <ul style="list-style-type: none">• Modeling component = 1 point<ul style="list-style-type: none">○ The student shows a correct strategy to determine the amount of money by which the club exceeded its goal.• Computation component = 1 point<ul style="list-style-type: none">○ The student provides the amount of money by which the club exceeded its goal. <p>Sample Student Response:</p> <p>"$15 \times 43 = 645$, and $645 - 500 = 145$" OR "Using my expression, I multiplied 43 by \$15 to get a total of \$645 raised. I then subtracted \$500 from \$645 to get \$145 for the amount that the club exceeded its goal."</p> <p>Notes:</p> <ul style="list-style-type: none">• The student may receive 1 point for Part B if the modeling process is correct but the student makes one or more computational errors resulting in incorrect answers.• The student may receive 1 point for Part B if he or she computes the correct answers but shows no work or insufficient work to indicate a correct modeling process. <p>If a student writes an incorrect model and answers the remaining prompts based on the model, he or she can receive 1 point for computation but no points for modeling.</p>
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.