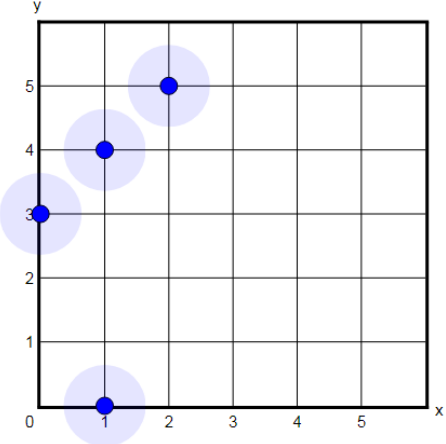


Item Number	Answer Key	Evidence Statement Key
1.	C, E, F	5.NF.1-1
2.	10	5.NF.7-1
3.	A	5.NBT.1
4.		5.G.1
5.	A	5.MD.3
6.	Part A: $\frac{8}{6}$ or equivalent fraction Part B: See Rubric	5.C.2-3
7.	A	5.NF.5a
8.	Part A: 43,125 Part B: 82,404	5.Int.1
9.	A	5.OA.1
10.	Part A: $\frac{27}{12}$ or equivalent fraction Part B: $\frac{1}{6}$ or equivalent fraction	5.NF.A.Int.1
11.	See Rubric	5.D.1
12.	C	5.NBT.2-2

13.	A	5.NF.2-2
14.	Part A: 48 Part B: 24	5.MD.5c
15.	148,082	5.NBT.5
16.	B	5.NF.3-2
17.	B, D	5.NF.4b-1
18.	Part A: $\frac{40}{7}$ or equivalent fraction Part B: 5 and 6	5.NF.3-2
19.	B	5.NBT.3a
20.	See Rubric	5.D.1
21.	Part A: $200 \times 10 = $ <input type="text" value="2000"/> $200 \times 100 = $ <input type="text" value="20000"/> $200 \times 1,000 = $ <input type="text" value="200000"/> Part B: $200 \times 0.1 = $ <input type="text" value="20"/> $200 \times 0.01 = $ <input type="text" value="2"/> $200 \times 0.001 = $ <input type="text" value="0.2"/>	5.NBT.Int.1
22.	$\frac{37}{60}$ or equivalent fraction	5.NF.1-2
23.	See Rubric	5.C.4-1
24.	B	5.NF.7c
25.	Part A: A Part B: B	5.G.2
26.	B	5.NBT.6
27.	$\frac{9}{8}$ or equivalent fraction	5.MD.2-2
28.	Part A: See Rubric Part B: See Rubric	5.C.7-4

29.	C	5.NF.4a-2
30.	Part A: See Rubric Part B: See Rubric	5.C.5-2
31.	A	5.NF.4b-1
32.	B, C, D, F	5.G.3
33.	104,754	5.NBT.5
34.	Part A: 12,000 Part B: 12	5.MD.1-2

#6 Rubric Part A
(This part is machine scored)

Score	Description
1	<p>Student response includes the following element.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the correct response of $\frac{8}{6}$, or any equivalent fraction.
0	Student response is incorrect or irrelevant.

#6 Rubric Part B

Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a valid explanation for how multiplication can be used to prove that the answer is correct. • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a correct multiplication equation in his or her explanation. <p>Sample Student Response:</p> <p>Since multiplication is the opposite of division, I can multiply the answer of $\frac{8}{6}$ by 6. If it is correct, it will equal the dividend of 8.</p> $\frac{8}{6} \times 6 = \frac{48}{6}$ <p>Notes:</p> <ul style="list-style-type: none"> • Other valid explanations are acceptable. • If a computation mistake is made, credit cannot be given for the computation component, but 1 point can be given for a valid equation.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#11 Rubric*

Score	Description
3	<p>Student response includes each of the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the correct number of people wearing both a hat and sunglasses, 32. • Computation component = 1 point

	<ul style="list-style-type: none"> ○ The student provides the correct number of people wearing a hat but not wearing sunglasses, 48. • Modeling component = 1 point <ul style="list-style-type: none"> ○ The student provides correct work or explanation. <p>Sample Student Response:</p> <p>There are 80 people wearing hats. $180 \times \frac{4}{9} = \frac{720}{9} = 80$</p> <p>The number of people wearing a hat and sunglasses is 32. $80 \times \frac{2}{5} = \frac{160}{5} = 32$</p> <p>The number of people who were wearing a hat but not sunglasses is $80 - 32 = 48$.</p> <p>Note:</p> <ul style="list-style-type: none"> • Other correct work or valid explanations are acceptable.
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

***This item does not follow the normal rule that there must be 50% or more points for modeling.**

#20 Rubric	
Score	Description
3	<p>Student response includes each of the following 3 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the correct area of each piece, $\frac{7}{12}$ square inches or equivalent fraction. • Modeling component = 1 point <ul style="list-style-type: none"> ○ The student provides a correct equation to find the area of one piece. • Modeling component = 1 point <ul style="list-style-type: none"> ○ The student provides correct work or explanation. <p>Sample Student Response:</p> <p>First, I found the width of the paper after the first cut. The width after the first cut was $\frac{7}{8}$ inch since $1\frac{5}{8} - \frac{3}{4} = \frac{13}{8} - \frac{6}{8} = \frac{7}{8}$.</p> <p>Then I found the length of the paper after the second cut. The length after the second cut was 8 inches since $8\frac{3}{4} - \frac{3}{4} = 8$.</p>

	<p>Then the length is cut in 12 equal-sized pieces. This means that the length of each of the pieces is $\frac{8}{12}$ since $8 \div 12 = \frac{8}{12}$.</p> <p>Finally, to find the area of each of the 12 equally-long pieces, I can use the formula for the area of a rectangle, $A = \text{length} \times \text{width}$.</p> <p>The area of each piece is $\frac{7}{12}$ square inch since $\frac{7}{8} \times \frac{8}{12} = \frac{7}{12}$.</p> <p>Note:</p> <ul style="list-style-type: none"> • Other valid explanations are acceptable.
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#23 Rubric

Score	Description
4	<p>Student response includes each of the following 4 elements.</p> <ul style="list-style-type: none"> • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the correct computation for difference, $\frac{5}{6}$ or equivalent. • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides an explanation of how to use the diagram to answer the question. • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides a correct computation for sum, $1\frac{5}{6}$ or equivalent. • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides an explanation how to use the diagram to find the total number of miles. <p>Sample Student Response:</p> <p>$\frac{5}{6}$ mile</p>

	<p>Josh biked $1\frac{1}{3}$ miles, which is the same as $1\frac{2}{6}$ miles. On the diagram, this is one full fraction strip for the whole-number part of $1\frac{2}{6}$ plus 2 sixths for the fraction part of $1\frac{2}{6}$. The mixed number $1\frac{2}{6}$ is the same as 8 sixths.</p> <p>Callie biked $\frac{1}{2}$ mile, which is the same as $\frac{3}{6}$ mile. On the diagram, this is represented as 3 sixths.</p> <p>To find how much farther Josh biked, I need to subtract. I just explained how $1\frac{2}{6}$ is 8 sixths on the diagram and $\frac{3}{6}$ is 3 sixths.</p> <p>I can count back 3 sixths on the diagram from 8 sixths, which gets me back to the first fraction strip at 5 sixths. So Josh biked $\frac{5}{6}$ mile farther than Callie.</p> <p>$1\frac{5}{6}$ miles</p> <p>To find the total distance biked altogether, I need to add. Starting with the distance Josh biked on the diagram, I can count up 3 more sixths to get to 5 sixths on the second fraction strip. This represents 1 whole plus 5 sixths, or $1\frac{5}{6}$ miles for the total distance Josh and Callie biked.</p> <p>Note:</p> <ul style="list-style-type: none"> • Other valid responses are acceptable.
3	Student response includes 3 of the above elements.
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#28 Rubric Part A	
Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a valid explanation of Stan’s error. • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the correct sum, $7\frac{2}{8}$ or equivalent, with valid work or explanation.

	<p>Sample Student Response:</p> <p>Stan did not add the fractions correctly. You have to add the numerators, not just use the greater one.</p> $4\frac{3}{8} + 2\frac{7}{8} = 6 + \frac{7+3}{8} = 6 + \frac{10}{8} = 6 + 1\frac{2}{8} = 7\frac{2}{8}$ <p>Or equivalent work</p>
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#28 Rubric Part B

Score	Description
2	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a valid explanation of Lila’s error. • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the correct difference, $1\frac{4}{8}$ or equivalent, with valid work or explanation. <p>Sample Student Response:</p> <p>Lila subtracted the numerator after changing the whole number into a sum of fractions. She should have subtracted the $2\frac{7}{8}$ from $4\frac{3}{8}$ by the following steps:</p> $4\frac{3}{8} = \frac{8}{8} + \frac{8}{8} + \frac{8}{8} + \frac{8}{8} + \frac{3}{8} = \frac{35}{8}$ $2\frac{7}{8} = \frac{8}{8} + \frac{8}{8} + \frac{7}{8} = \frac{23}{8}$ $\frac{35}{8} - \frac{23}{8} = \frac{12}{8} = 1\frac{4}{8}$ <p>Or equivalent work</p>
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

#30 Rubric Part A

Score	Description
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<p>2</p>	<p>Student response includes the following 2 elements.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a valid explanation of how to use the number line to find the product. • Computation component = 1 point <ul style="list-style-type: none"> ○ The student provides the response of $\frac{12}{5}$, or equivalent fraction or mixed number. <p>Sample Student Response:</p> <p>The number line is divided into fifths, which means every hash mark represents one-fifth. Starting at 0 on the number line, I can count three hash marks to the right to get to the point representing $\frac{3}{5}$.</p> <p>Since I am multiplying $\frac{3}{5}$ by 4, this is like adding $\frac{3}{5}$ four times. I need to add $\frac{3}{5}$ three more times, or count 9 more hash marks since 3 hash marks of one-fifth multiplied by 3 more times equals 9. This gets me to the 12th hash mark on the number line. This point represents $\frac{12}{5}$ or $2\frac{2}{5}$ and is the product of $\frac{3}{5} \times 4$.</p> <p>Note:</p> <ul style="list-style-type: none"> • A variety of explanations are possible.
<p>1</p>	<p>Student response includes 1 of the above elements.</p>
<p>0</p>	<p>Student response is incorrect or irrelevant.</p>
<p>#30 Rubric Part B</p>	
<p>Score</p>	<p>Description</p>
<p>1</p>	<p>Student response includes the following 1 element.</p> <ul style="list-style-type: none"> • Reasoning component = 1 point <ul style="list-style-type: none"> ○ The student provides a valid explanation of how to use the number line to find the product of $\frac{3}{5}$ and $\frac{1}{2}$. <p>Sample Student Response:</p> <p>First, I divided the number line into tenths since the product of the denominators is 10. Next, I located $\frac{3}{5}$ on the number line. Since $\frac{3}{5} = \frac{6}{10}$ and the number line is divided into tenths, $\frac{6}{10}$ is located at the 6th hash mark. Last, I found exactly one-half the distance between 0 and the sixth hash mark on the number line; the third hash mark, or $\frac{3}{10}$.</p>

	Note: <ul style="list-style-type: none">• A variety of explanations are possible.
0	Student response is incorrect or irrelevant.