

Tennessee Comprehensive Assessment Program

TCAP/CRA 2013



3

Anchor Set

Grade 3 – Finding Area Task

SECURE MATERIAL - Reader Name: _____

Tennessee Comprehensive Assessment Program

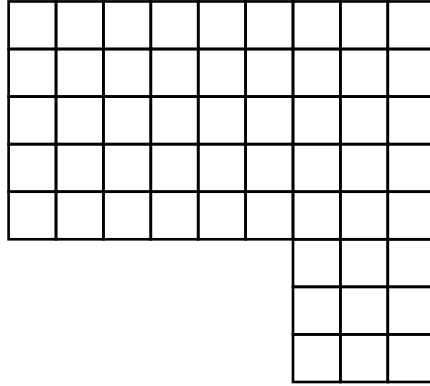
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Part 2: Constructed Response Task Section

Finding Area Task

Help Erin partition Figure 1 into two rectangles.

Figure 1



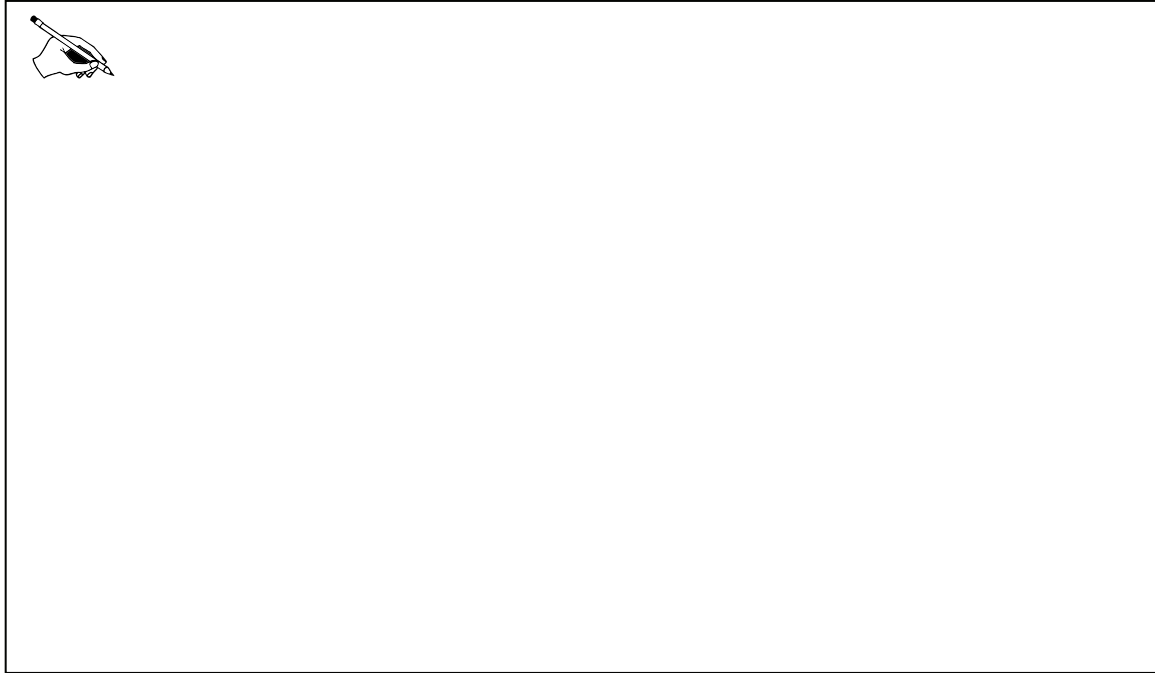
- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

A large rectangular box for the student's response. In the top-left corner, there is a small icon of a hand holding a pencil.



Part 2: Constructed Response Task Section

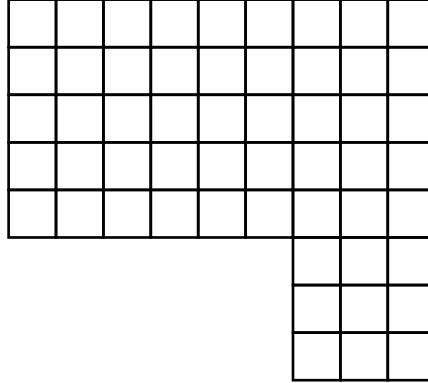
- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.



Part 2: Constructed Response Task Section

Now help Erin partition Figure 1 in a *different* way.

Figure 1



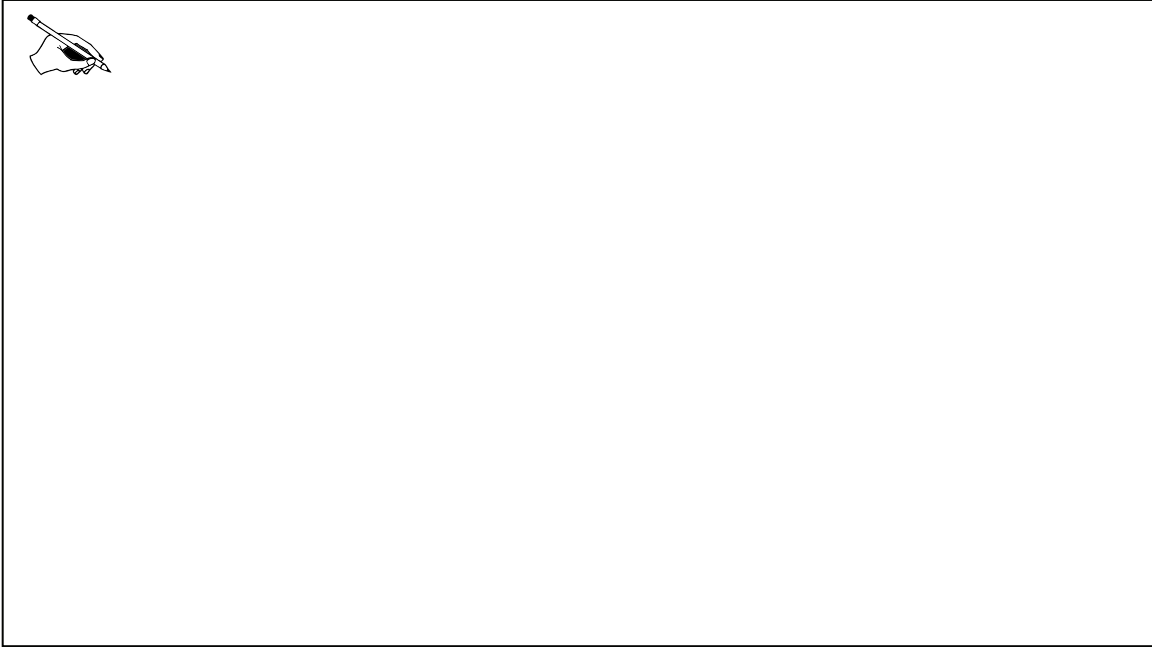
- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

A large rectangular box for drawing and writing. In the top left corner, there is a small icon of a hand holding a pencil.

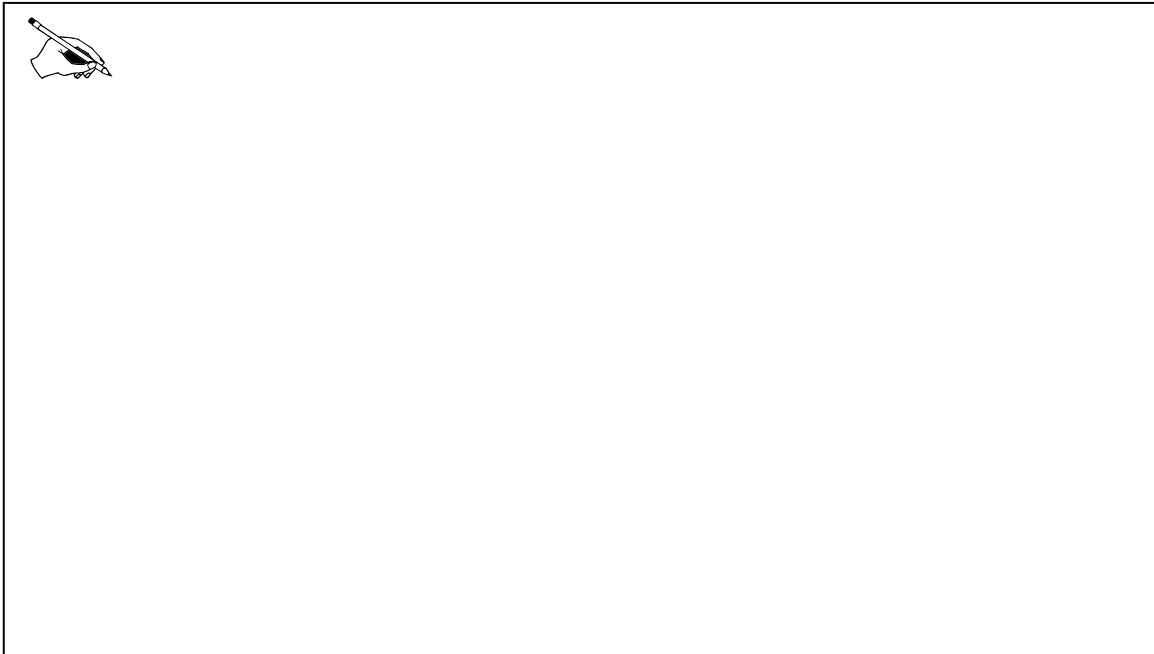


Part 2: Constructed Response Task Section

- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



Scoring Guide

The CCSS for Mathematical Content (3 points)

- 3.MD.C.7b Indicates accurate multiplication expressions for at least three of the areas of the partitioned rectangles. _____
(1 Point)
- 3.MD.C.7d(x) Decomposes the figure into two or more rectangles and identifies the area of each rectangle and then recomposes the areas to arrive at the total area of the figure. (First partitioning of the figure) _____
(1 Point)
- 3.MD.C.7d(z) Decomposes the figure into two or more rectangles and identifies the area of each rectangle and then recomposes the areas to arrive at the total area of the figure. (Second partitioning of the figure) _____
(1 Point)

The CCSS for Mathematical Practice (3 points)

- MP4 Indicates multiplication equations for individual rectangles. _____
(1 Point)
(MP4: Model with mathematics.)
- MP6 Indicates accurate calculations. Indicates a precise explanation for part e. _____
(1 Point)
(MP6: Attend to precision.)
- MP7 Indicates that the total area remains the same regardless of how the figure is partitioned and then recombined. _____
(1 Point)
(MP7: Look for and make use of structure.)

TOTAL POINTS: 6

The CCSS for Mathematical Content Addressed In This Task

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	
3.MD.C.7b	Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
3.MD.C.7d	Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

The CCSS for Mathematical Practice*

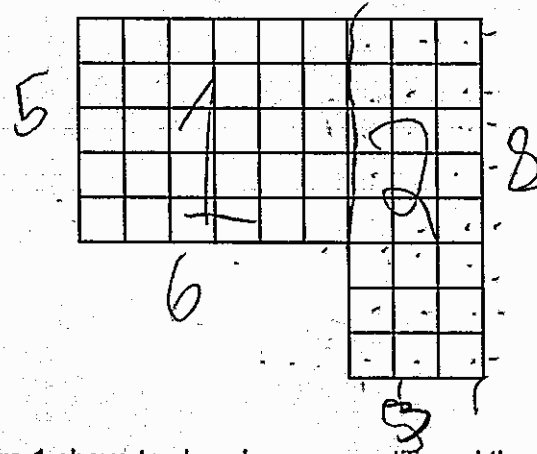
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

* Gray type indicates Mathematical Practices not addressed in this assessment.


1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.

Figure 1




- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

 1. $3 \times 8 = 24$ sq units

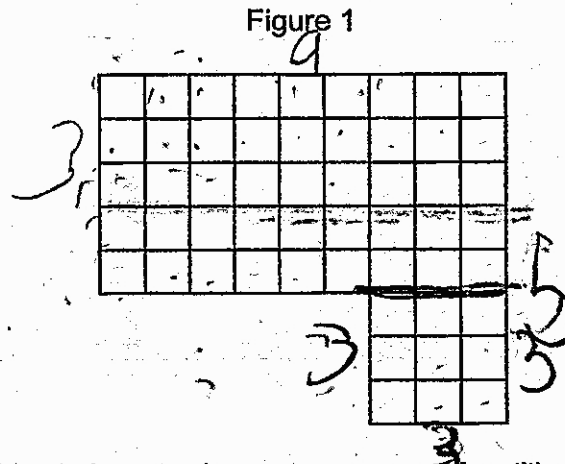
2. $5 \times 6 = 30$ sq units

- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.


 $(3 \times 8) + (5 \times 6) = 54$

54. I know it's 54 because
 30 was a total area and
 the another was 24 so when
 you add them up you get 54

Now help Erin partition Figure 1 in a *different* way.



- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.




$$1.5 \times 9 = 45 \text{ sq. units}$$


$$3 \times 3 = 9 \text{ sq. units}$$

A-1d

- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.

 $45 + 9 = 54 \text{ sq units}$
 $(5 \times 9) + (3 \times 3) = 54$

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.

 No, I disagree with Erin because even though they have different shapes (rectangles) they have the same big shape. They may be different shapes but they make the same big shape.

Anchor 1

Litho 0013

Total Content Points: 3 (3.MD.C.7b, 3.MD.C.7d(x), 3.MD.C.7d(z))

Total Practice Points: 2 (MP4, MP7)

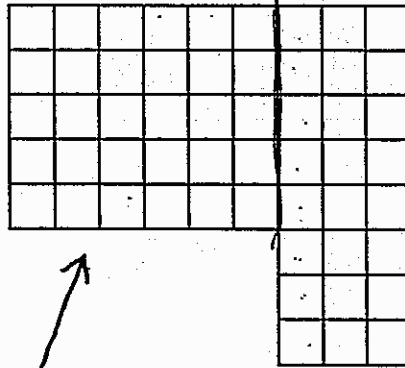
The student provides a total of four accurate multiplication expressions for the areas of the partitioned rectangles: 3×8 and 5×6 in Part A, and 5×9 and 3×3 in Part C (3.MD.C.7b). In Part A, the student decomposes the figure into two rectangles and identifies the area of each ($3 \times 8 = 24$, $5 \times 6 = 30$), then in Part B recomposes the areas to arrive at the total area of the figure ($30 + 24 = 54$) (3.MD.C.7d(x)). In Part C, the student decomposes the figure into two different rectangles and identifies the area of each ($5 \times 9 = 45$, $3 \times 3 = 9$), then recomposes the areas to arrive at the total area of the figure ($45 + 9 = 54$) (3.MD.C.7d(z)). The student provides a total of four multiplication equations representing individual rectangles in Parts A and C (MP4). The student provides accurate calculations, but the explanation in Part E is imprecise because the student refers to the figures as having “the same big shape” instead of the same area (no credit for MP6). However, the explanation in Part E does indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (MP7).

Total Awarded Points: 5 out of 6


1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.

Figure 1

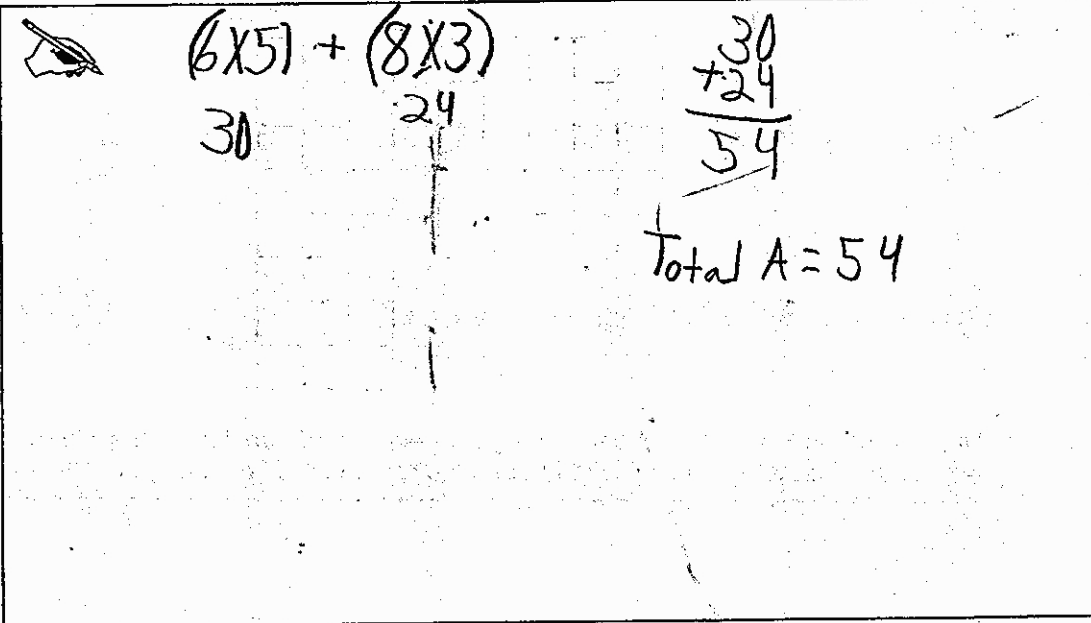



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

 $5 \times 6 = 30$
 $A = 30$

$8 \times 3 = 24$
 $A = 24$

- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.



 $(6 \times 5) + (8 \times 3)$

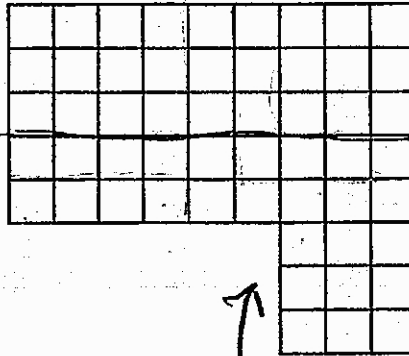
30 24

$$\begin{array}{r} 30 \\ +24 \\ \hline 54 \end{array}$$


Total A = 54

Now help Erin partition Figure 1 in a *different* way.

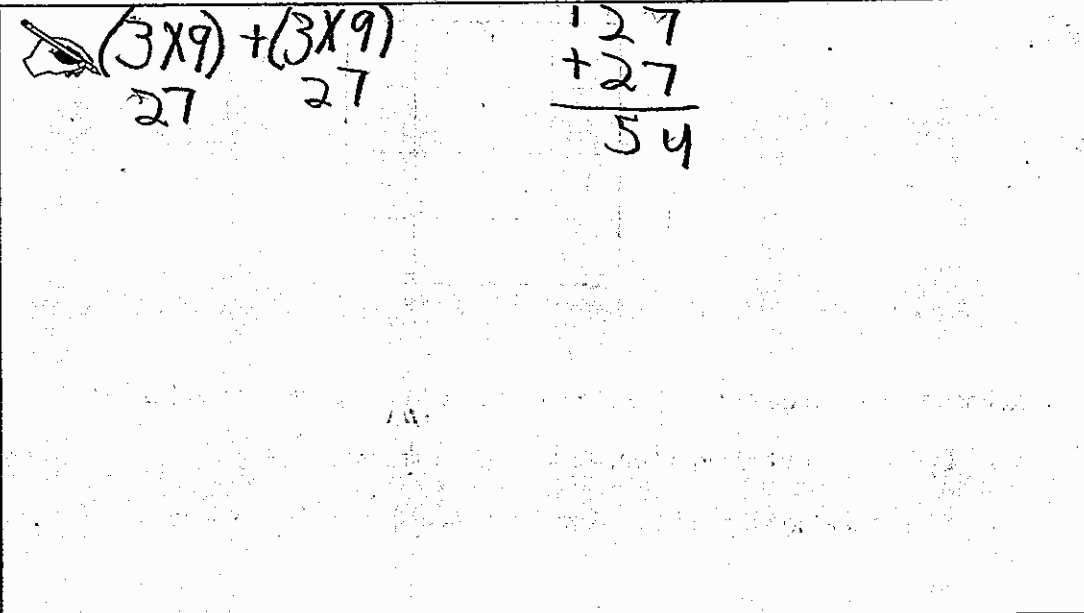
Figure 1



- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

 $3 \times 9 = 27$ $3 \times 9 = 27$

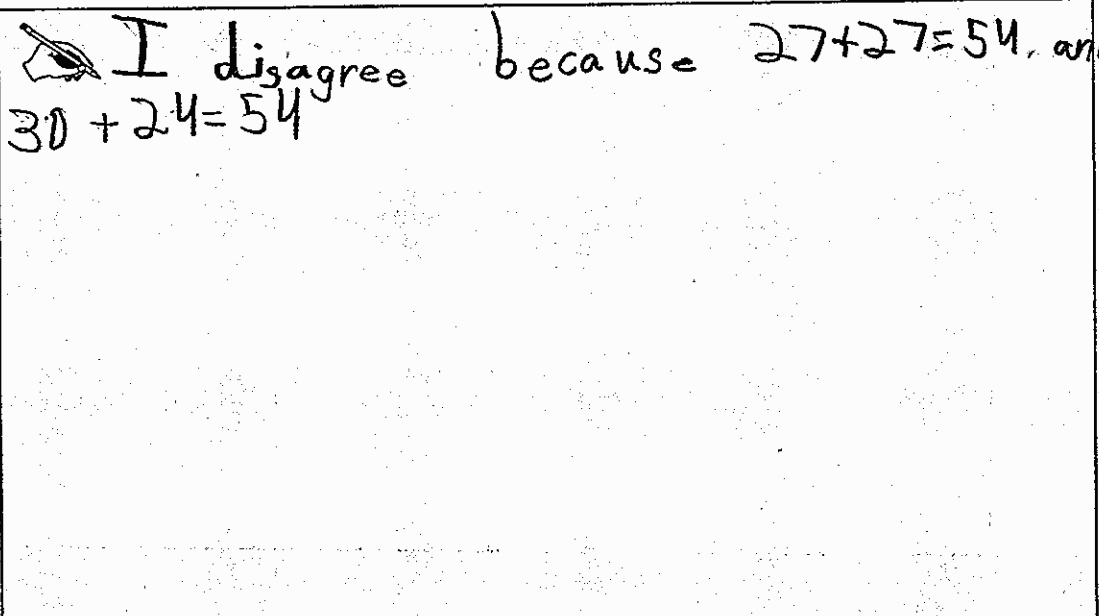
- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



$(3 \times 9) + (3 \times 9)$
 $27 \quad 27$

$$\begin{array}{r} 27 \\ + 27 \\ \hline 54 \end{array}$$

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



I disagree because $27 + 27 = 54$, and $30 + 24 = 54$

Anchor 2

Litho 00062

Total Content Points: 2 (3.MD.C.7b, 3.MD.C.7d(x))

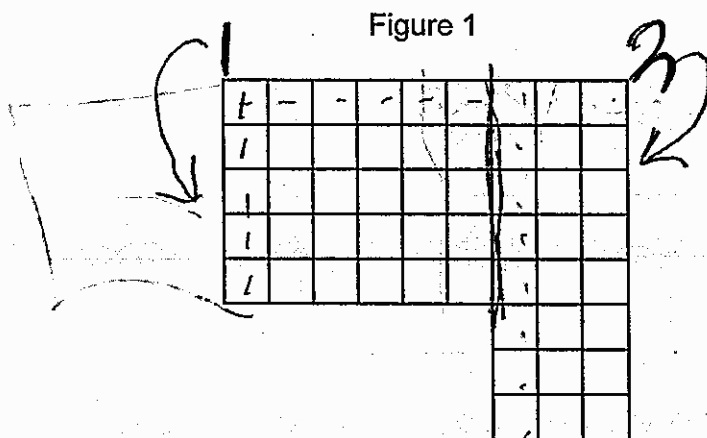
Total Practice Points: 3 (MP4, MP6, MP7)

The student provides three accurate multiplication expressions for the areas of the partitioned rectangles: 5×6 and 8×3 in Part A, and 3×9 in Part C (3.MD.C.7b). In Part A, the student decomposes the figure into two rectangles and identifies the area of each ($5 \times 6 = 30$, $8 \times 3 = 24$), then in Part B recomposes the areas to arrive at the total area of the figure ($30 + 24 = 54$) (3.MD.C.7d(x)). In Part C, the student decomposes the figure into one rectangle and provides a correct equation to identify the area ($3 \times 9 = 27$), but the other decomposed figure is not rectangular and the equation identifying the area does not match the dimensions of the shape (no credit for 3.MD.C.7d(z)). The student provides two correct multiplication equations representing individual rectangles in Part A and one in Part C (MP4). The calculations throughout the task are precise, as is the explanation in Part E (MP6). In Part E, by disagreeing with Erin and providing equations that show the sums for the partitioned rectangles from both Parts B and D, the student indicates the total area remains the same regardless of how the figure is partitioned and then recombined (MP7).

Total Awarded Points: 5 out of 6

1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

1

$6 \times 5 = 30$ area

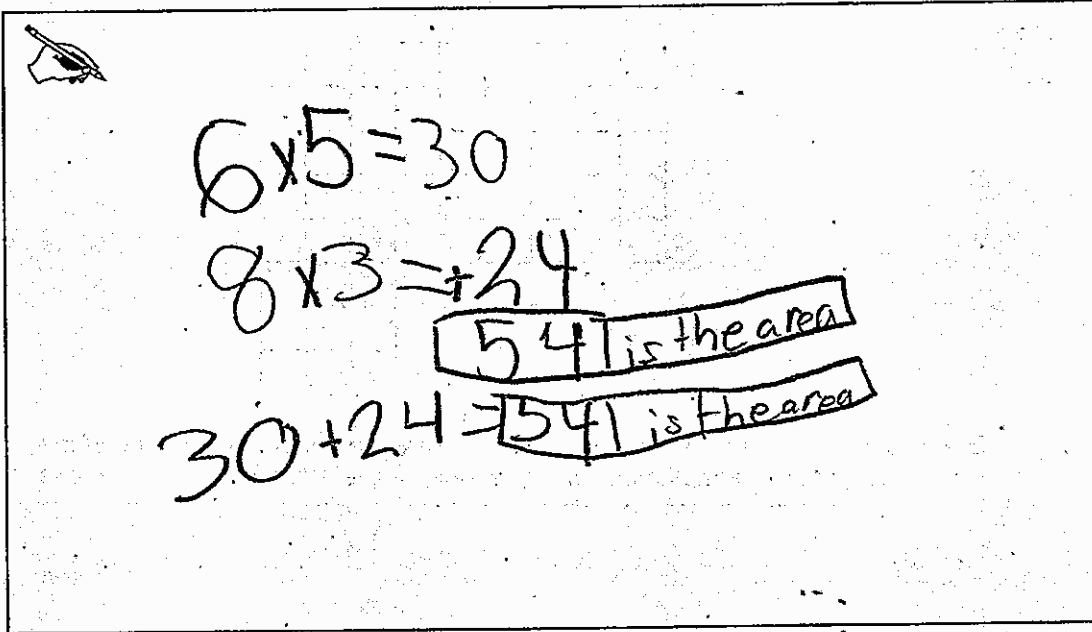
$5 \times 6 = 30$

2

$8 \times 3 = 24$

$3 \times 8 = 24$

- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.



Handwritten work showing the calculation of the total area of a figure composed of two rectangles:

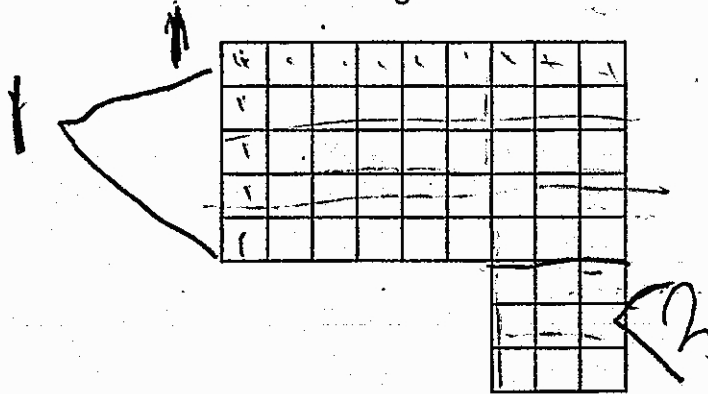
$$6 \times 5 = 30$$
$$8 \times 3 = 24$$

54 is the area

$$30 + 24 = 54 \text{ is the area}$$

Now help Erin partition Figure 1 in a *different* way.

Figure 1

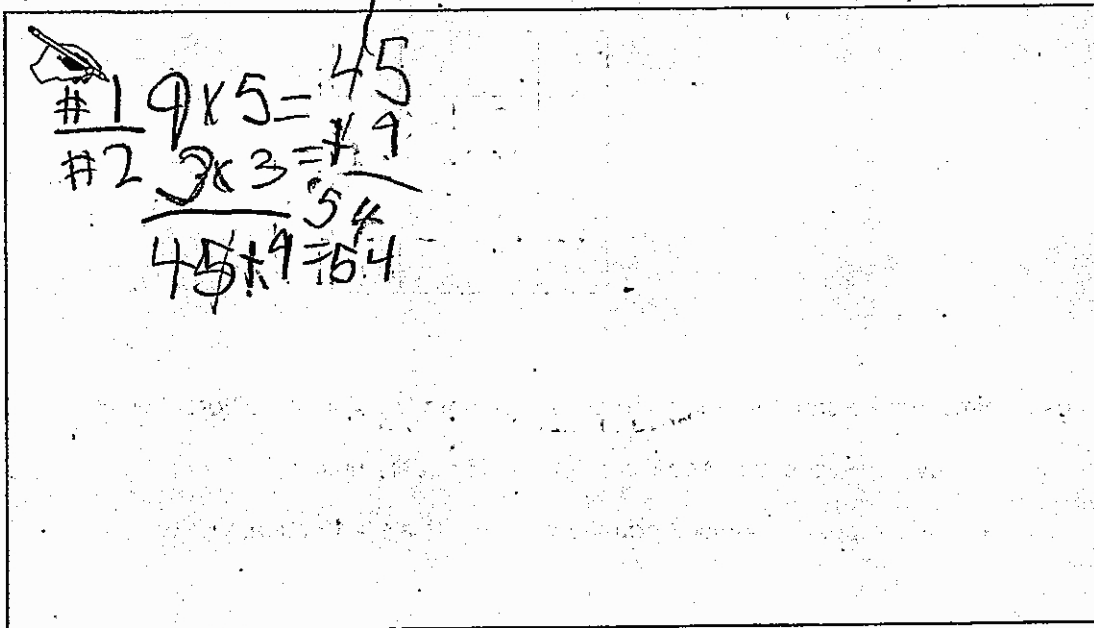


- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

~~$5 \times 9 = 45$
 $9 \times 5 = 45$~~

$7 \times 3 = 21$
 $3 \times 3 = 9$

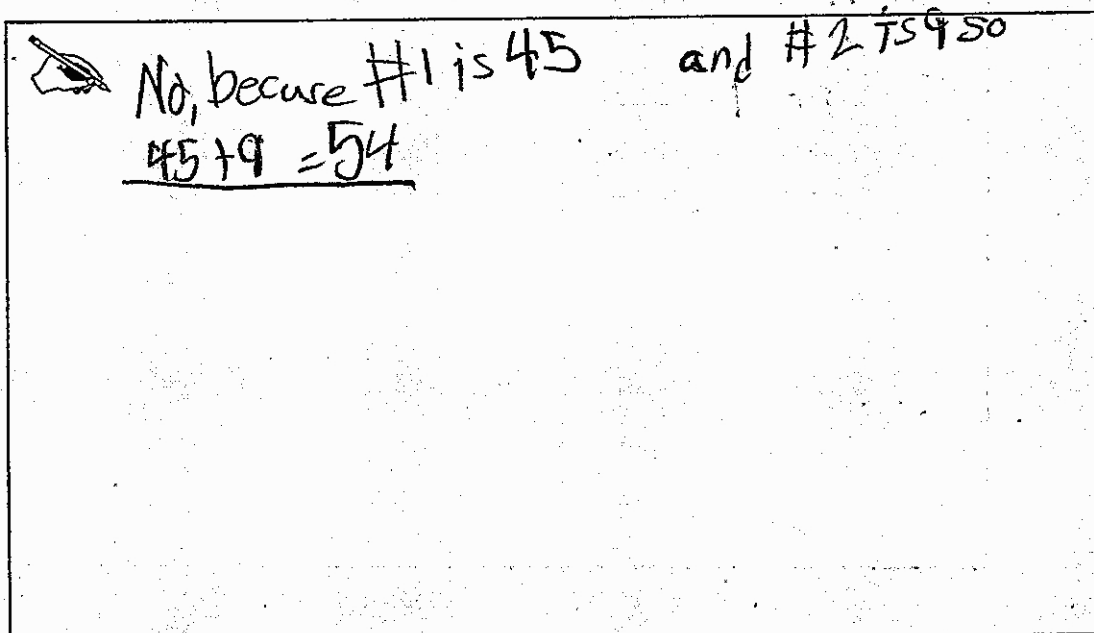
- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



Handwritten calculations showing the areas of two rectangles and their sum:

$$\begin{array}{l} \#1 \quad 9 \times 5 = 45 \\ \#2 \quad 3 \times 3 = 9 \\ \hline 45 + 9 = 54 \end{array}$$

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



Handwritten explanation and calculation:

No, because #1 is 45 and #2 is 9 so

$$\underline{45 + 9 = 54}$$

Anchor 3

Litho 0055

Total Content Points: 3 (3.MD.C.7b, 3.MD.C.7d(x), 3.MD.C.7d(z))

Total Practice Points: 1 (MP4)

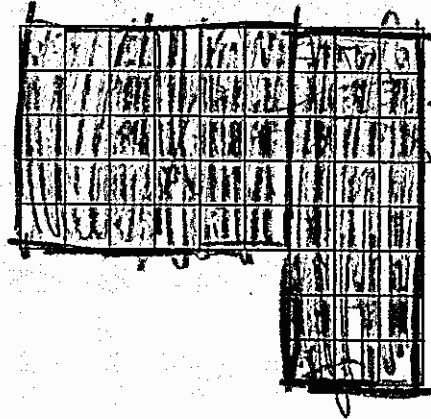
The student provides a total of four accurate multiplication expressions for the areas of the partitioned rectangles: 6×5 and 8×3 in Part A, and 9×5 and 3×3 in Part C (3.MD.C.7b). In Part A, the student decomposes the figure into two rectangles and identifies the area of each ($6 \times 5 = 30$, $8 \times 3 = 24$), then in Part B recomposes the areas to arrive at the total area of the figure ($30 + 24 = 54$) (3.MD.C.7d(x)). In Part C, the student decomposes the figure into two different rectangles and identifies the area of each ($9 \times 5 = 45$, $3 \times 3 = 9$), then recomposes the areas to arrive at the total area of the figure ($45 + 9 = 54$) (3.MD.C.7d(z)). The student provides a total of four multiplication equations representing individual rectangles in Parts A and C (MP4). Calculations throughout the task are accurate, but the explanation in Part E is unclear and refers only to the figure partitioned in Part C (no credit for MP6). Therefore the student does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 4 out of 6

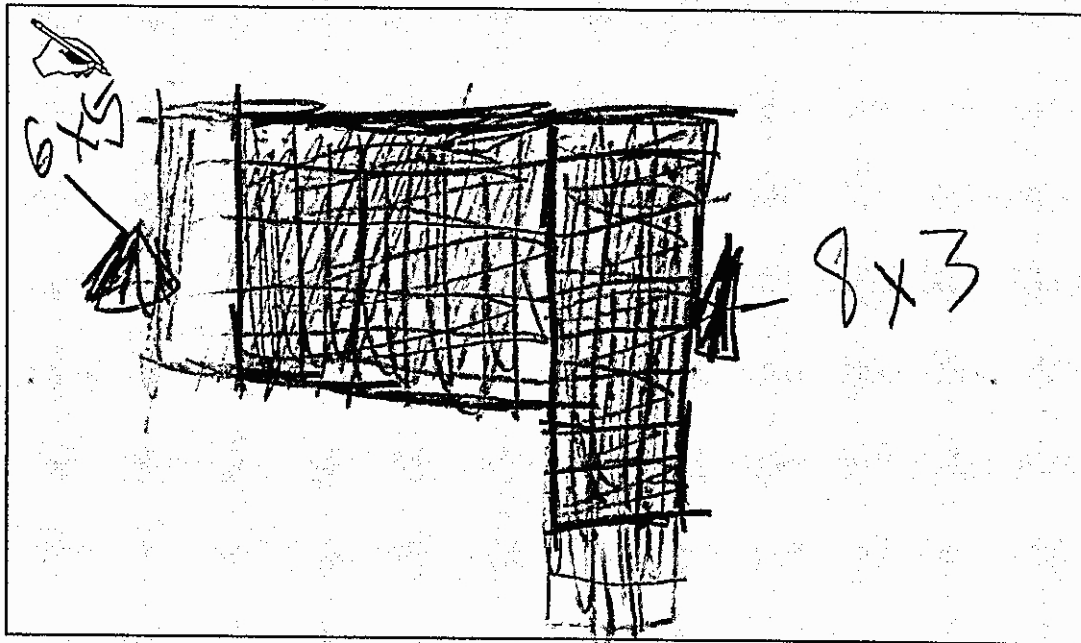
1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.

Figure 1



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

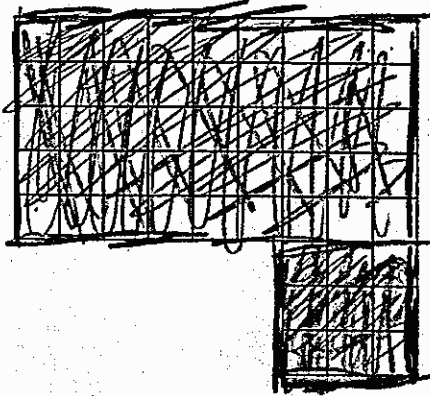


- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.


Handwritten student work showing calculations for the area of a composite figure. The work includes a diagram of a composite figure with dimensions 8, 6, 8, and 3. Calculations show the area of a rectangle with length 8 and width 3 is 24, and the area of a rectangle with length 6 and width 3 is 18. The total area is calculated as 24 + 18 = 42. A circled '54' is also present, which appears to be a correction or a different calculation.

Now help Erin partition Figure 1 in a *different* way.

Figure 1



- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.



$9 \times 5 = 45$ $3 \times 3 = 9$
 $9 + 9 + 9 + 9 + 9 = 45$ 45
 $3 + 3 + 3 = 9$

$$\begin{array}{r} 9 \\ 9 \\ 9 \\ 9 \\ 9 \\ + 9 \\ \hline 45 \end{array}$$

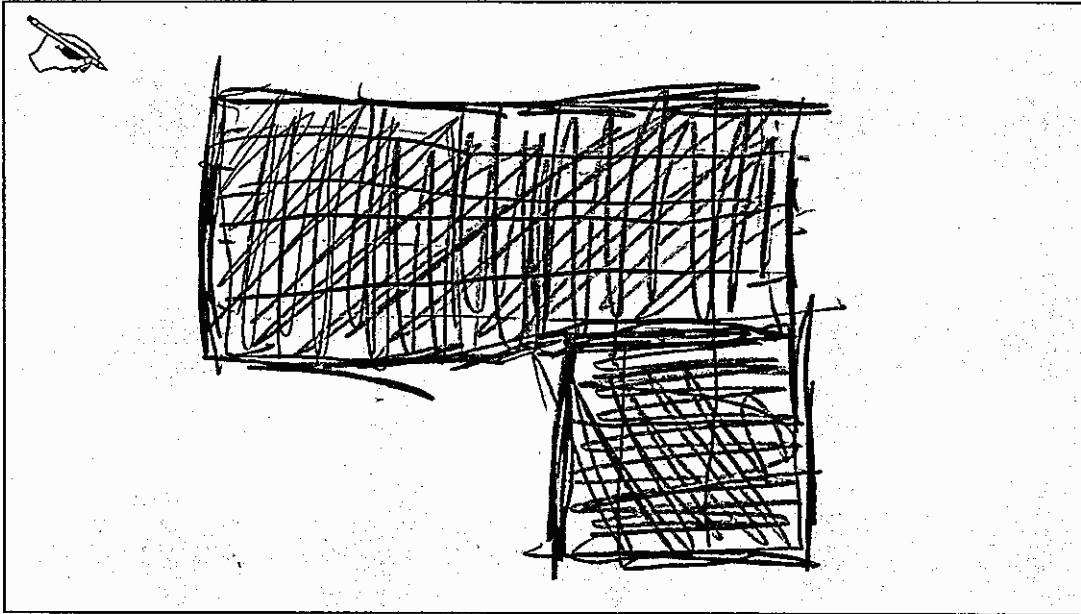
$$\begin{array}{r} 9 \\ 9 \\ 9 \\ + 9 \\ \hline 27 \end{array}$$

$$\begin{array}{r} 9 \\ + 9 \\ \hline 18 \end{array}$$

54

$$\begin{array}{r} 9 \\ + 9 \\ \hline 18 \end{array}$$

- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.

Yes because a rectangle can not be at the same angle. It has to be to different numbers

Anchor 4

Litho 01233200015

Total Content Points: 3 (3.MD.C.7b, 3.MD.C.7d(x), 3.MD.C.7d(z))

Total Practice Points: 1 (MP4)

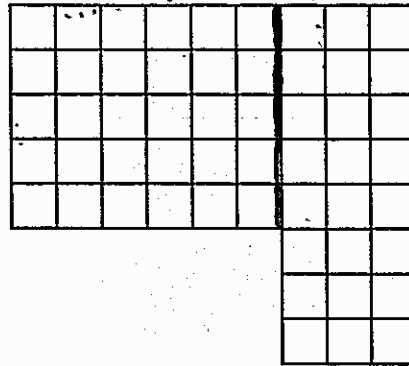
The student provides a total of four accurate multiplication expressions for the areas of the partitioned rectangles: 6×5 and 8×3 in Part A, and 9×5 and 3×3 in Part C (3.MD.C.7b). In Part A, the student decomposes the figure into two rectangles and provides correct expressions, then in Part B identifies the area of each rectangle ($6 \times 5 = 30$, $8 \times 3 = 24$) and recomposes the areas to arrive at the total area of the figure ($30 + 24 = 54$) (3.MD.C.7d(x)). In Part C, the student decomposes the figure into two different rectangles and identifies the area of each ($9 \times 5 = 45$, $3 \times 3 = 9$), then, also in Part C, recomposes the areas to arrive at the total area of the figure ($45 + 9 = 54$) (3.MD.C.7d(z)). Although in Part A the student provides only expressions and not equations, multiplication equations representing individual rectangles are given in Part C (MP4). Calculations throughout the task are accurate, but the explanation in Part E is unclear (“a rectangle can not be at the same angel. It has to be to different numbers”) (no credit for MP6). The student also does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 4 out of 6

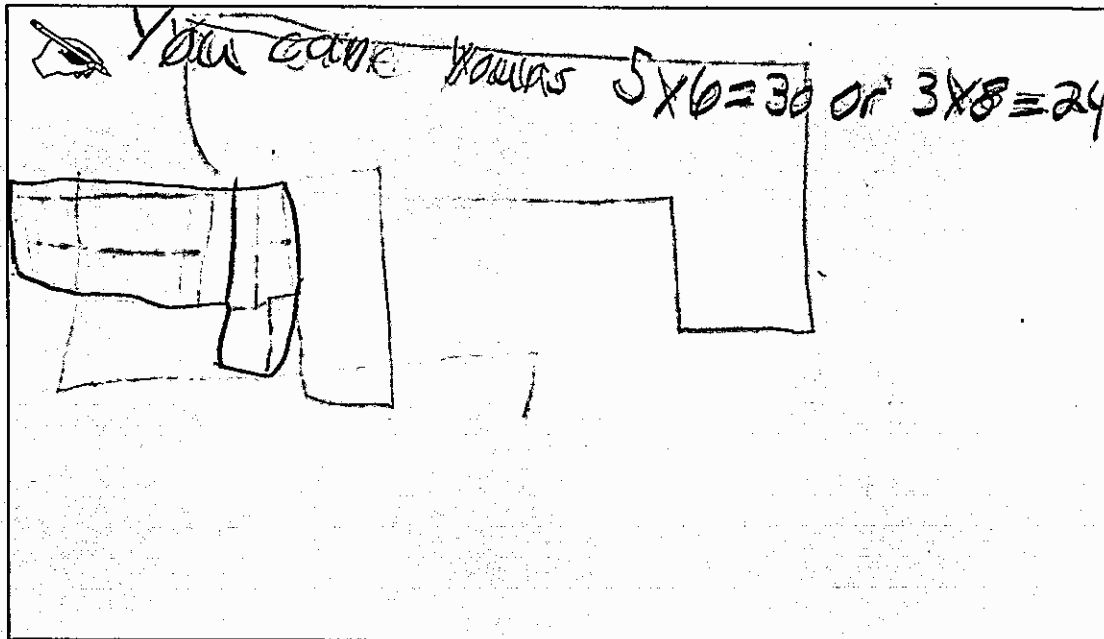
1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.


Figure 1



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

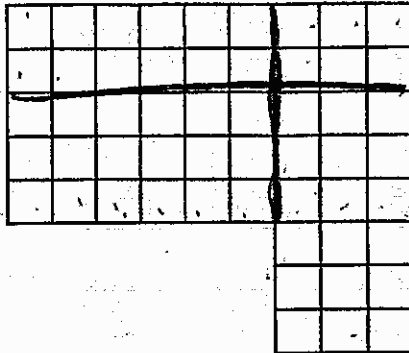


- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.

 You can take 30 and add 24 and you get 54, because multiplication
 $5 \times 6 = 30$ or $3 \times 8 = 24$
multiplication

Now help Erin partition Figure 1 in a *different* way.

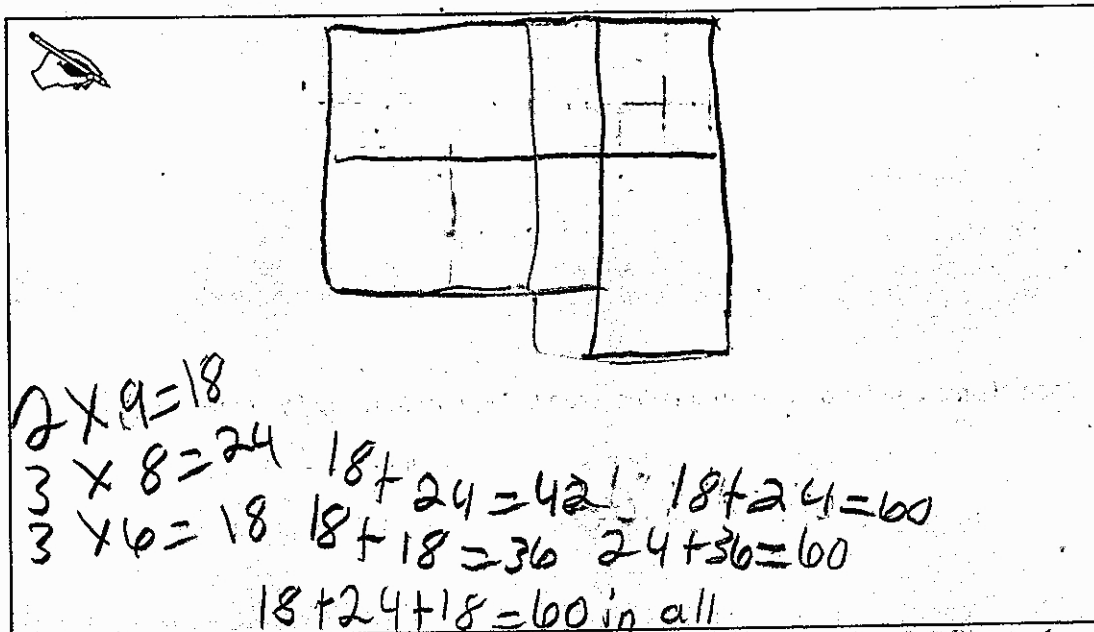
Figure 1



- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

$2 \times 9 = 18$ or $3 \times 6 = 18$ or $8 \times 3 = 24$
 8×3

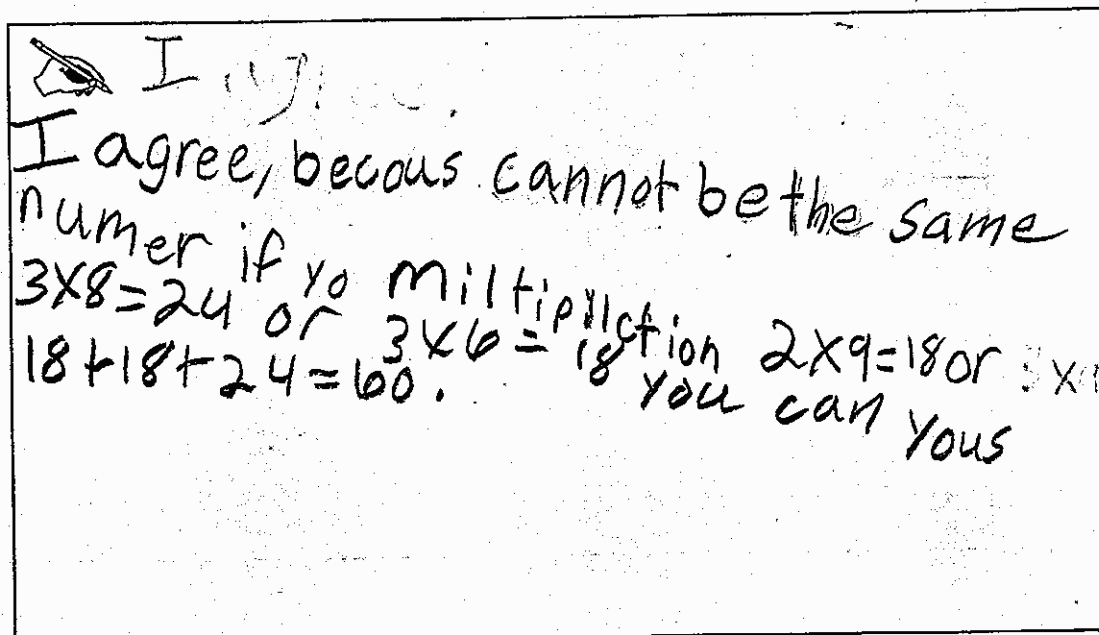
- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



$2 \times 9 = 18$
 $3 \times 8 = 24$
 $3 \times 6 = 18$

$18 + 24 = 42$
 $18 + 18 = 36$
 $18 + 24 = 60$
 $24 + 36 = 60$
 $18 + 24 + 18 = 60$ in all

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



I agree, because cannot be the same number if you multiplication
 $3 \times 8 = 24$ or $3 \times 6 = 18$
 $18 + 18 + 24 = 60$.
 $2 \times 9 = 18$ or $3 \times 8 = 24$
 you can yous

Anchor 5

Litho 0002

Total Content Points: 2 (3.MD.C.7b, 3.MD.C.7d(x))

Total Practice Points: 1 (MP4)

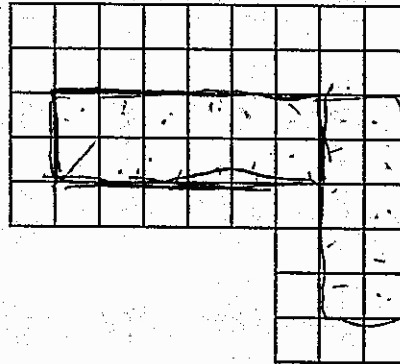
The student provides three accurate multiplication expressions for the areas of the partitioned rectangles: 5×6 and 3×8 in Part A, and 3×6 in Part C (3.MD.C.7b). In Part A, the student decomposes the figure into two rectangles and identifies the area of each ($5 \times 6 = 30$, $3 \times 8 = 24$), then in Part B recomposes the areas to arrive at the total area of the figure (“30 and add 24 and you get 54”) (3.MD.C.7d(x)). Because of the overlapping rectangles in Part C (2×9 and 8×3), the student does not successfully decompose the figure (no credit for 3.MD.C.7d(z)). The student provides two multiplication equations representing individual rectangles in Part A and one in Part C (MP4). In Part D the calculation $18 + 24 = 60$ is inaccurate, and in Part E the explanation is unclear (no credit for MP6). Furthermore, the explanation does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 3 out of 6


1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.

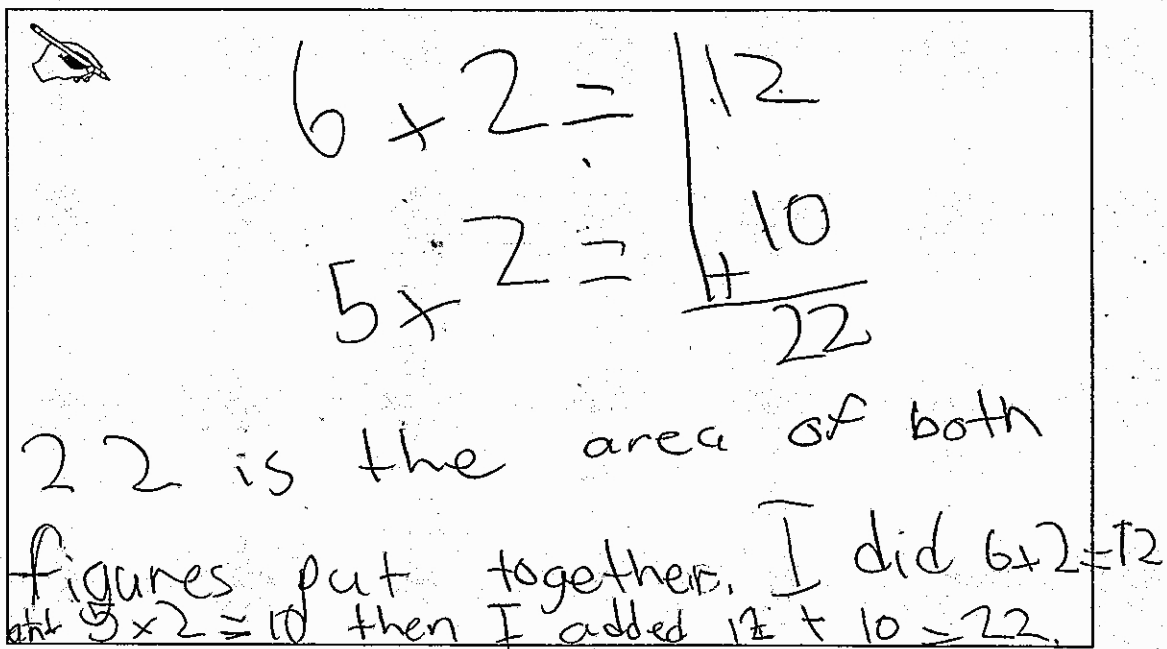
Figure 1




- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.


$$6 \times 2 = 12$$
$$5 \times 2 = 10$$

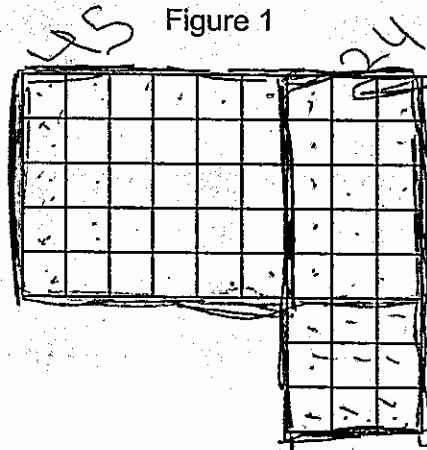
- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.



 $6 \times 2 = 12$
 $5 \times 2 = 10$
 $\frac{12}{+ 10}$
 $\hline 22$

22 is the area of both figures put together. I did $6 \times 2 = 12$ and $5 \times 2 = 10$ then I added $12 + 10 = 22$.

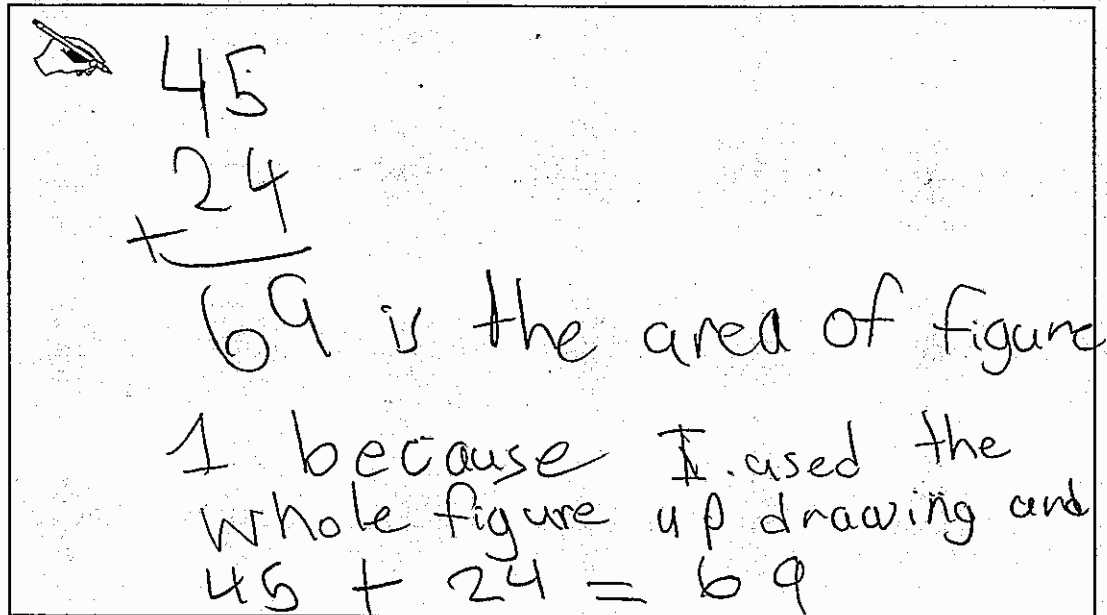
Now help Erin partition Figure 1 in a *different* way.



- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

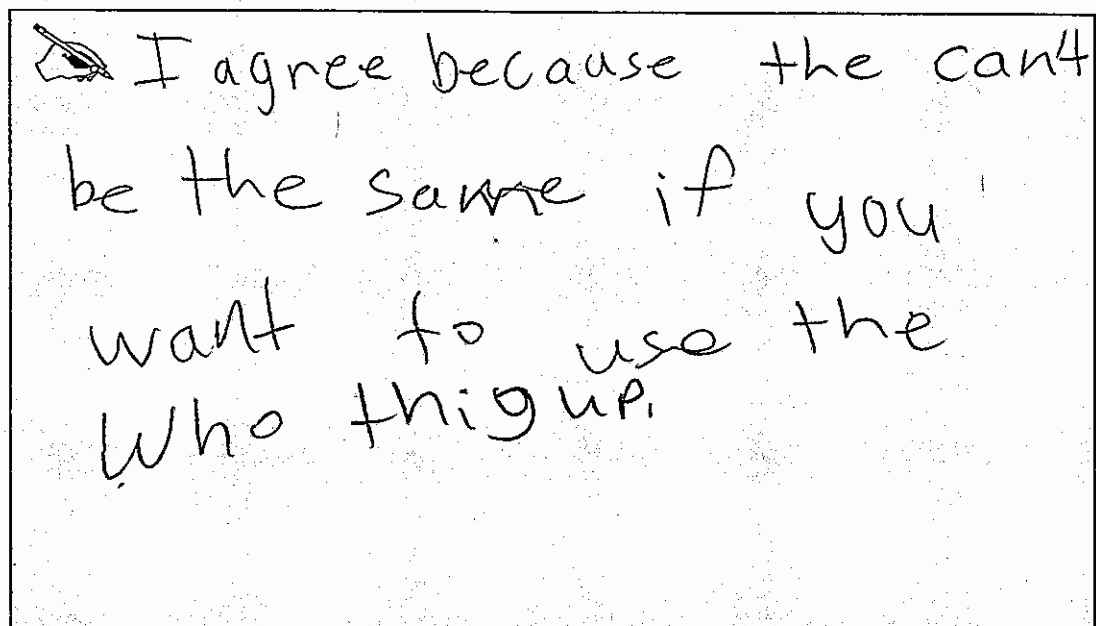
$5 \times 6 = 45$
 $8 \times 3 = 24$
69

- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



$$\begin{array}{r} 45 \\ + 24 \\ \hline 69 \end{array}$$
 69 is the area of figure 1 because I used the whole figure up drawing and $45 + 24 = 69$

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



I agree because the can't be the same if you want to use the whole thing up.

Anchor 6

Litho 01173200015

Total Content Points: 2 (3.MD.C.7b, 3.MD.C.7d(z))

Total Practice Points: 1 (MP4)

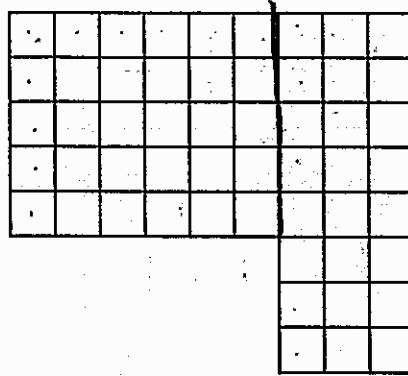
The student provides a total of four accurate multiplication expressions for the areas of the partitioned rectangles: 6×2 and 5×2 in Part A, and 5×6 and 8×3 in Part C (3.MD.C.7b). In Part A, the student indicates two rectangles in the figure and provides correct equations representing these, but does not successfully decompose the entire figure into smaller rectangles in order to recompose them and arrive at the total area of the figure (no credit for 3.MD.C.7d(x)). However, in Part C the student correctly recognizes the process to decompose the figure into smaller non-overlapping rectangles, finding the areas for these, then recomposing by adding the areas to find the total area of the figure (3.MD.C.7d(z)). An inaccurate calculation ($5 \times 6 = 45$) causes the student to arrive at an incorrect area (69) (no credit for MP6). The student provides two multiplication equations representing individual rectangles in Part A and one ($8 \times 3 = 24$) in Part C (MP4). The student does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 3 out of 6

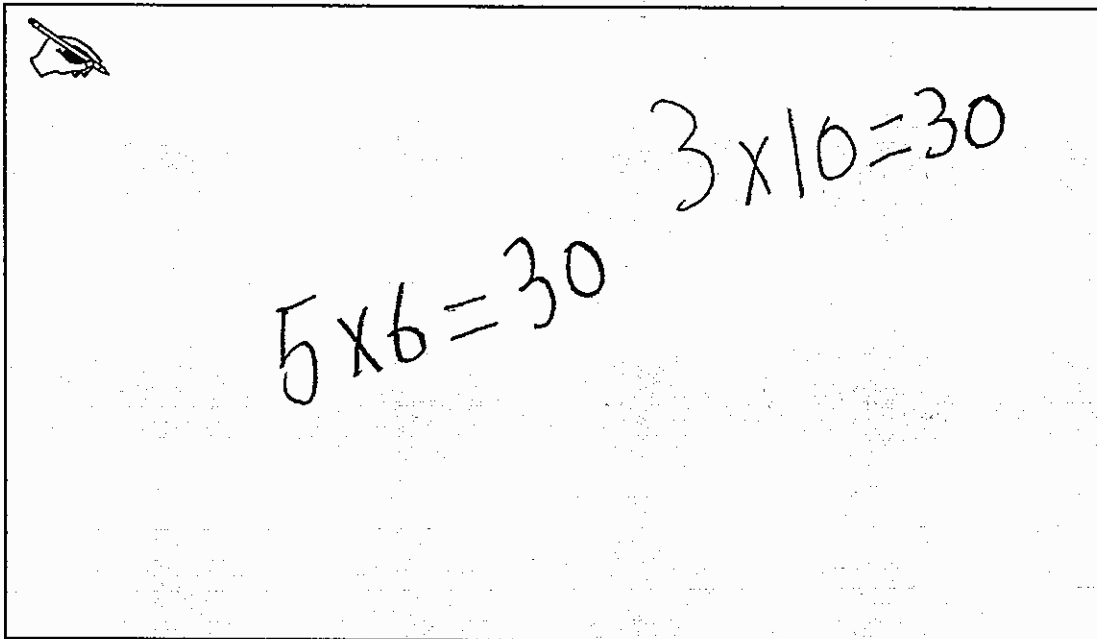
1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.


Figure 1



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.



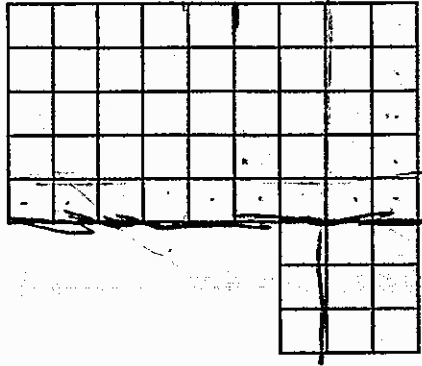
- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.



$30 + 30 = 60$
Because both of the answers
is 30 and $30 + 30 = 60$.

Now help Erin partition Figure 1 in a *different* way.

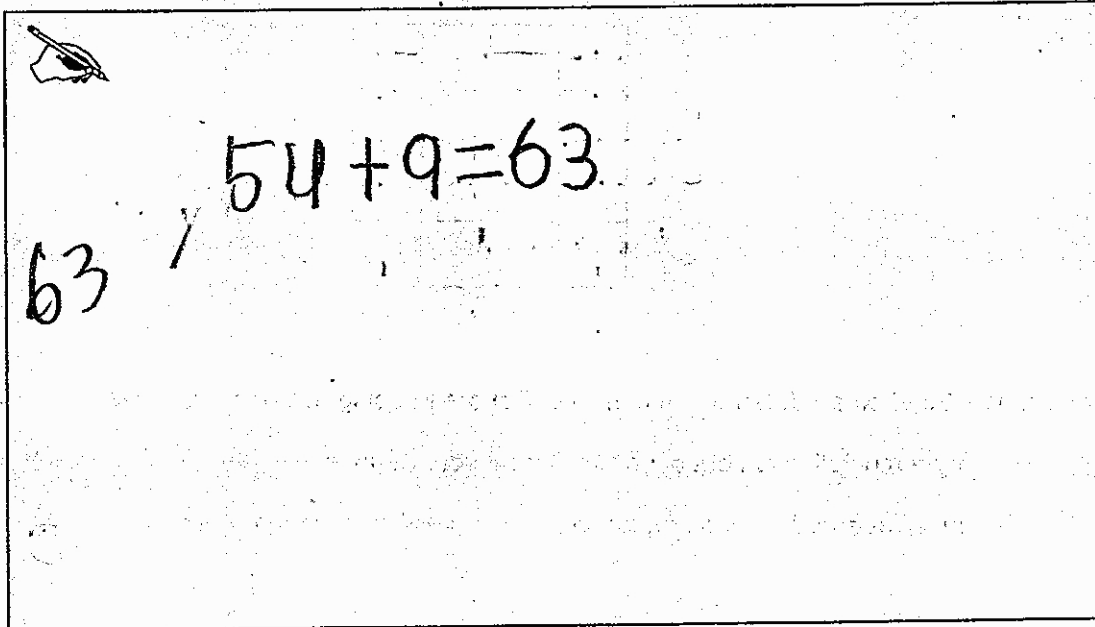
Figure 1



- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

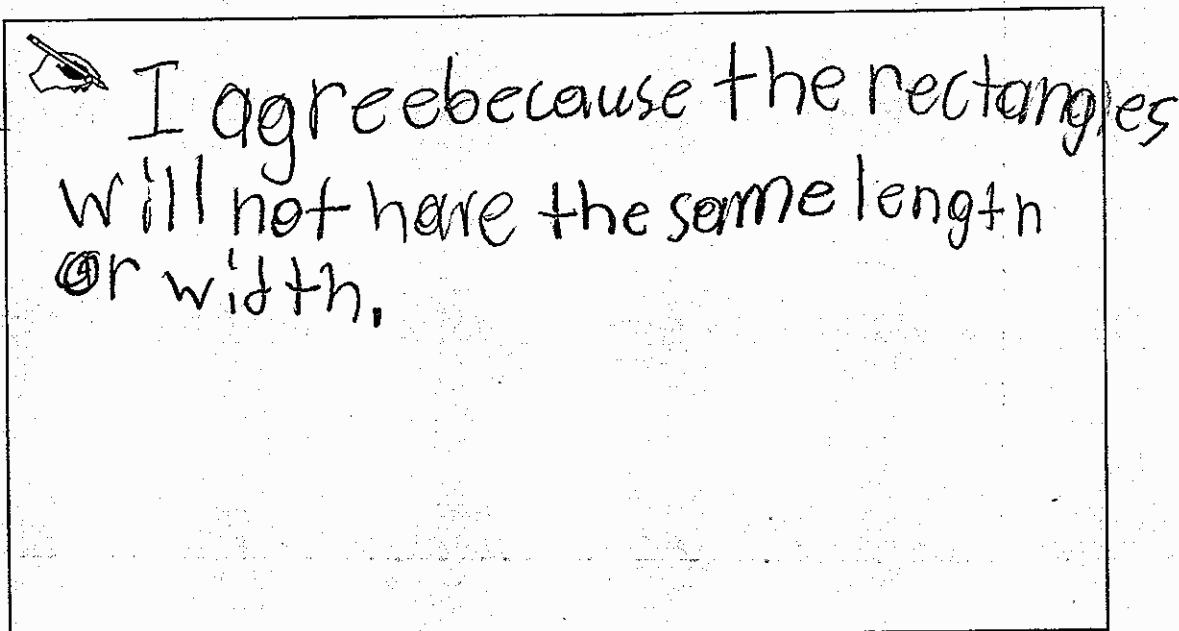
$3 \times 3 = 9$
 $6 \times 9 = 54$

- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



A rectangular box containing handwritten work. In the top left corner, there is a small drawing of a hand holding a pencil. The main text consists of the equation $54 + 9 = 63$ written in the center, and the number 63 written vertically on the left side.

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



A rectangular box containing handwritten text. In the top left corner, there is a small drawing of a hand holding a pencil. The text reads: "I agree because the rectangles will not have the same length or width."

Anchor 7

Litho 0030

Total Content Points: 2 (3.MD.C.7d(x), 3.MD.C.7d(z))

Total Practice Points: 1 (MP4)

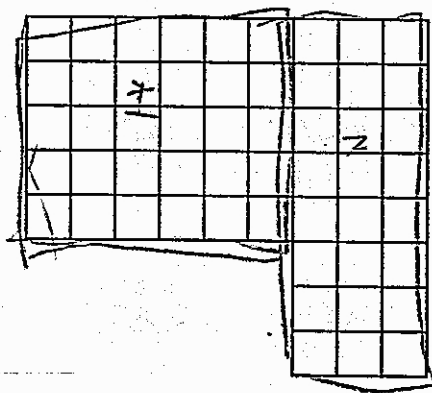
The student provides only two accurate multiplication expressions for the areas of the partitioned rectangles: 5×6 in Part A and 3×3 in Part C. The other two expressions inaccurately represent the partitioned rectangles (3×10 in Part A and 6×9 in Part C) (no credit for 3.MD.C.7b). For the partitioning of the figure in both Parts A and C, the student uses the correct process to decompose the figure into smaller, non-overlapping rectangles, identifying the areas of these, and then recomposing the areas to arrive at the total area of the figure (3.MD.C.7d(x); 3.MD.C.7d(z)). However, in each part the student miscounts and shows an inaccurate representation for one of the partitioned rectangles, thus arriving at an incorrect area for each of the figures (no credit for MP6). The student provides multiplication equations representing individual rectangles: $5 \times 6 = 30$ in Part A and $3 \times 3 = 9$ in Part C (MP4). The student incorrectly agrees in Part E that the figures cannot have the same area, and the explanation offered does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 3 out of 6

1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.

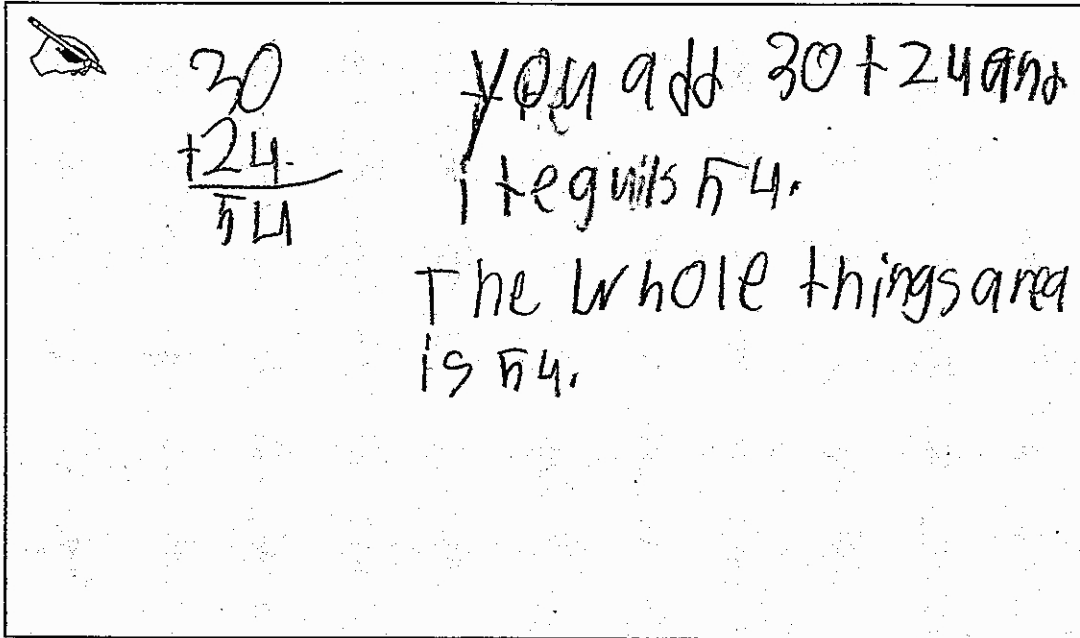
Figure 1



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

number 1's area is 30.
 number 2's area is
 $3 \times 8 = 24$
 $4 \times 6 = 30$
 30
 + the number being
 is bigger than 2.

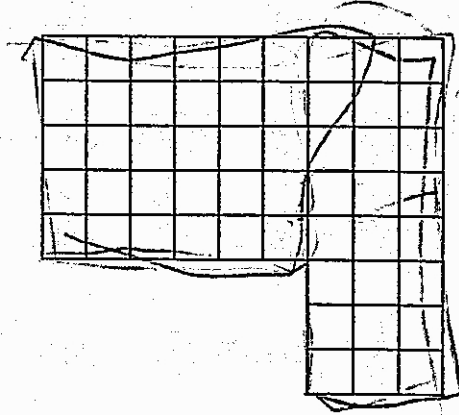
- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.




A handwritten student response is enclosed in a rectangular box. On the left side of the box, there is a small drawing of a hand holding a pencil. To the right of the drawing is a vertical addition problem:
$$\begin{array}{r} 30 \\ +24 \\ \hline 54 \end{array}$$
 To the right of the math problem, the student has written the following text in cursive: "you add 30 + 24 and it equals 54. The whole thing area is 54."

Now help Erin partition Figure 1 in a *different* way.

Figure 1

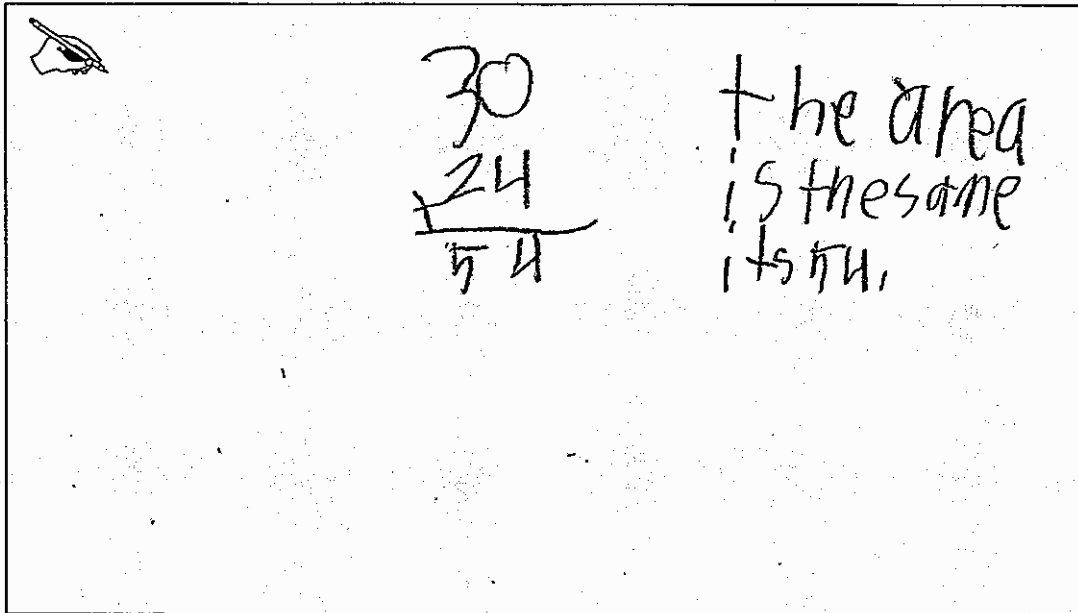


- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.



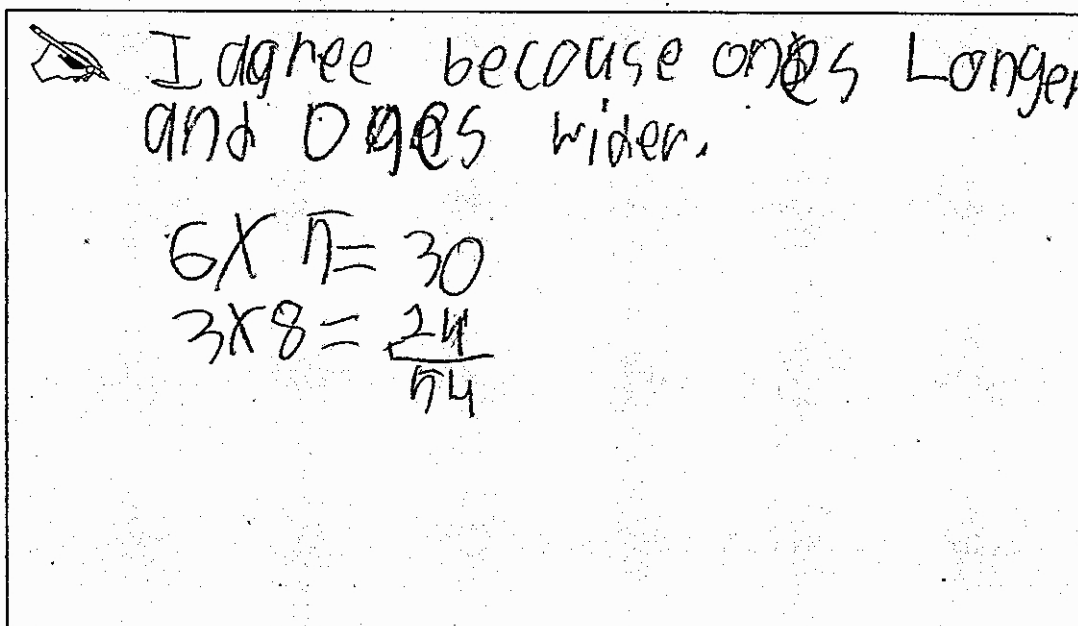
$5 \times 8 = 40$
 $8 \times 3 = 24$
 $6 \times 7 = 42$
 $3 \times 8 = 24$

- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



$$\begin{array}{r} 30 \\ + 24 \\ \hline 54 \end{array}$$
 The area is the same its 54.

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



I agree because ones longer and ones wider.

$$6 \times 5 = 30$$

$$3 \times 8 = 24$$

$$54$$

Anchor 8

Litho 01003200015

Total Content Points: 1 (3.MD.C.7d(x))

Total Practice Points: 1 (MP4)

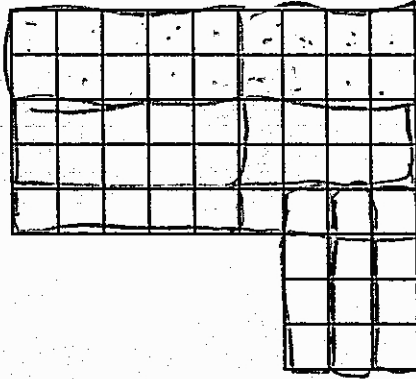
In Part A, the student provides two accurate multiplication expressions for the areas of the partitioned rectangles (3×8 and 5×6), but in Part C the student repeats the partitioning and uses the same equations (no credit for 3.MD.C.7b). In Part A, the student decomposes the figure into two rectangles and identifies the area of each ($3 \times 8 = 24$, $5 \times 6 = 30$), and then in Part B recomposes the areas to arrive at the total area of the figure (“you add 30 and 24 and it equals 54”) (3.MD.C.7d(x)). In Part C, the student does not partition the figure in a different way, but repeats the work from the first partitioning (no credit for 3.MD.C.7d(z)). In Part A, the student provides two multiplication equations for individual rectangles (MP4). The student gives accurate calculations in all parts, but the calculations in Parts C, D, and E are copies of the work from Parts A and B and do not provide sufficient evidence of precision. Additionally, the explanation in Part E is unclear (no credit for MP6). It does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 2 out of 6

1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.


Figure 1



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

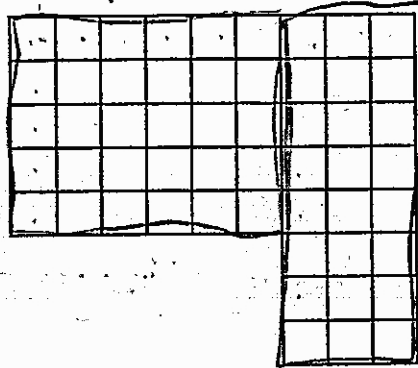
$5 \times 4 = 20$
 $10 \times 2 = 20$

- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.


 I used my 2 rectangles to find the ansors to the area by multiplying $2 \times 10 = 20$ and adding $20 + 20 = 40$ and so on.

Now help Erin partition Figure 1 in a *different* way.


Figure 1




- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

 $3 \times 8 = 24$
 $5 \times 6 = 30$

- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.

 I figured out that Figure 1. ansore is 54 by multiplying and adding. forget 54.

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.

 Erin's claim is correct because the rectangles are different and equal different ansors like $3 \times 8 = 24$
 $5 \times 6 = 30$.

Anchor 9

Litho 0014

Total Content Points: 1 (3.MD.C.7d(z))

Total Practice Points: 1 (MP4)

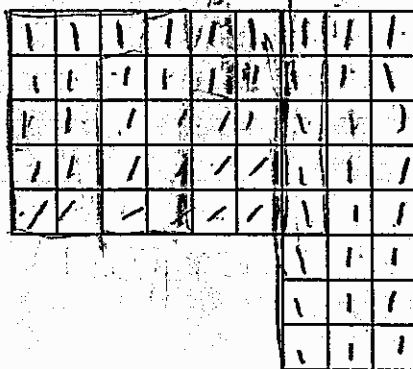
In Part C, the student provides two accurate multiplication expressions for the areas of the partitioned rectangles (3×8 and 5×6), but in Part A the expressions do not represent any partitioned rectangles (no credit for 3.MD.C.7b). In Part A, the student partitions the figure into rectangles, but does not provide equations representing any of these rectangles, and therefore does not successfully decompose the entire figure into smaller rectangles in order to recompose them and arrive at the total area of the figure (no credit for 3.MD.C.7d(x)). In Part C, the student decomposes the figure into two rectangles and identifies the area of each ($3 \times 8 = 24$, $5 \times 6 = 30$), and then in Part D recomposes the areas to arrive at the total area of the figure (“by multiplying and adding to get 54”) (3.MD.C.7d(z)). In Part C, the student provides two multiplication equations for individual rectangles (MP4). Accurate calculations are provided, but the explanation in Part E is unclear (no credit for MP6). The student agrees in Part E that the figures cannot have the same area, and the explanation offered does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 2 out of 6

1. Finding Area Task

Help Erin partition Figure 1 into two rectangles.


Figure 1



- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

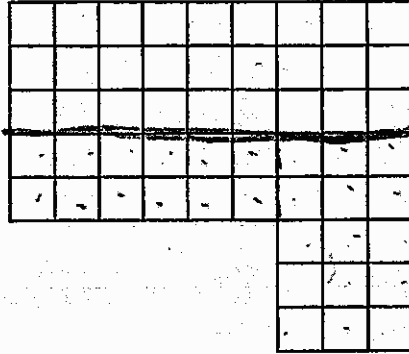
I did $30 + 24 = 54$
 So $30 + 24 = 54$ + 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.

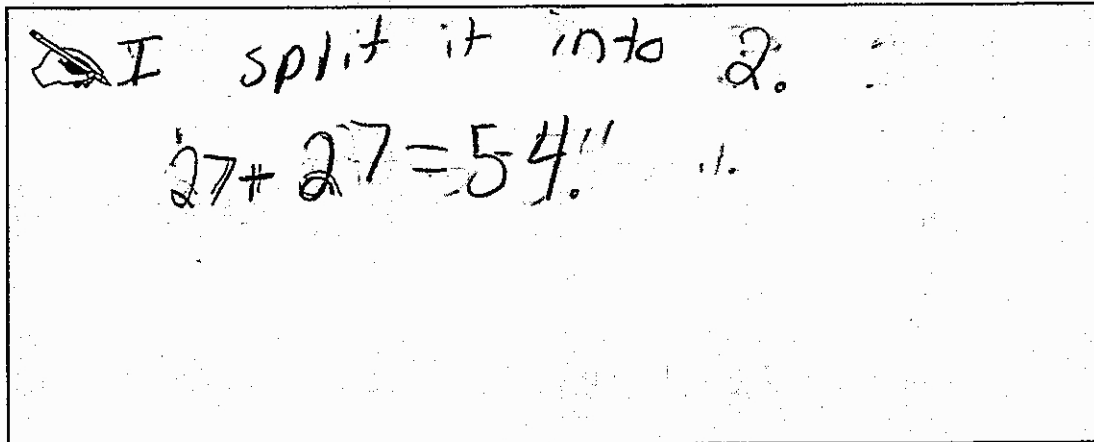
 Well I split it where one side had 24 as an area & the other side had 30 as an area. My sum was 54.

Now help Erin partition Figure 1 in a *different* way.

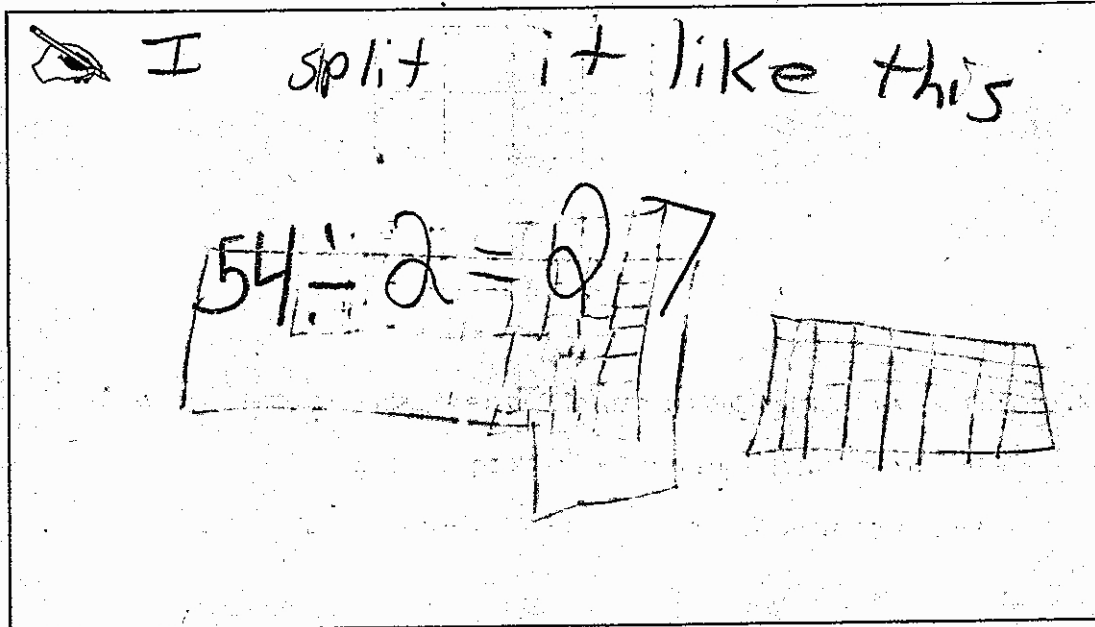
Figure 1



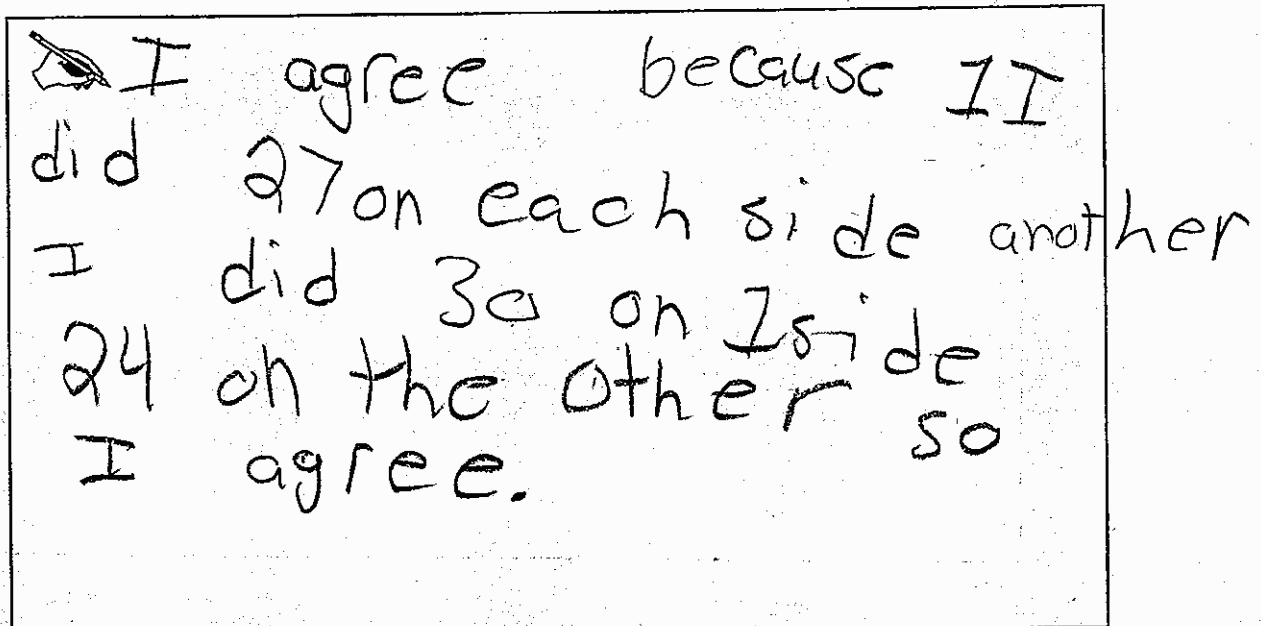
- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.



- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.



- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.



Anchor 10

Litho 0067

Total Content Points: 1 (3.MD.C.7d(x))

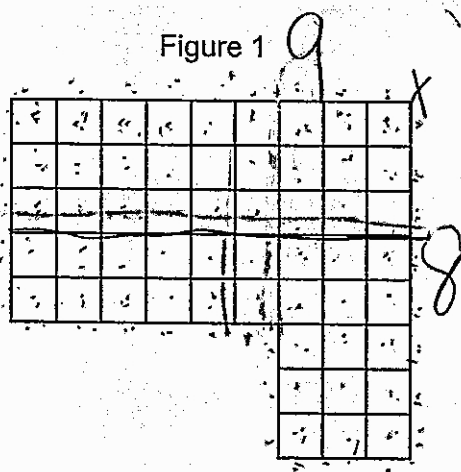
Total Practice Points: 0

The student does not provide any multiplication expressions in Parts A or C (no credit for 3.MD.C.7b). In Part A, the student decomposes the figure into two rectangles and identifies the area of each ($30 + 24$), and then in Part B recomposes the areas to arrive at the total area of the figure (“24 as an area and the other side had 30 as an area. My sum was 54”) (3.MD.C.7d(x)). In Part C, the student does not decompose the figure into different rectangles, but instead provides one rectangle and another non-rectangular shape (no credit for 3.MD.C.7d(z)). The student does not provide any multiplication equations (no credit for MP4). Some accurate calculations are provided, but there are no multiplication equations to show the areas, and the explanation in Part E is unclear, so there is insufficient evidence of precision (no credit for MP6). In Part E, the student does not indicate the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 1 out of 6

1. Finding Area Task

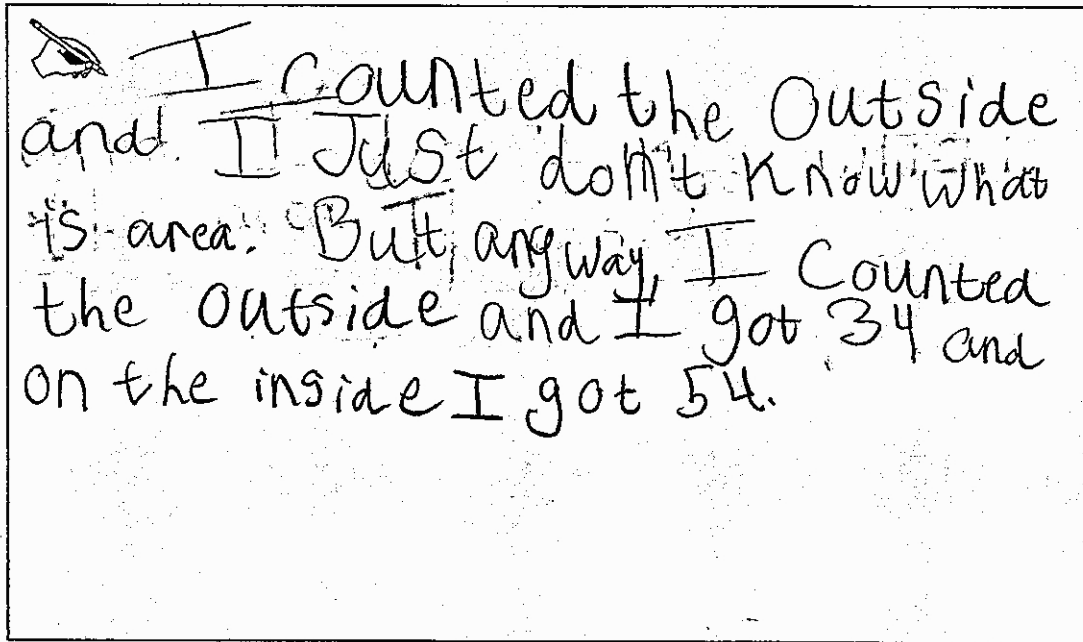
Help Erin partition Figure 1 into two rectangles.




- a. Draw a line on Figure 1 above to show how you partitioned the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

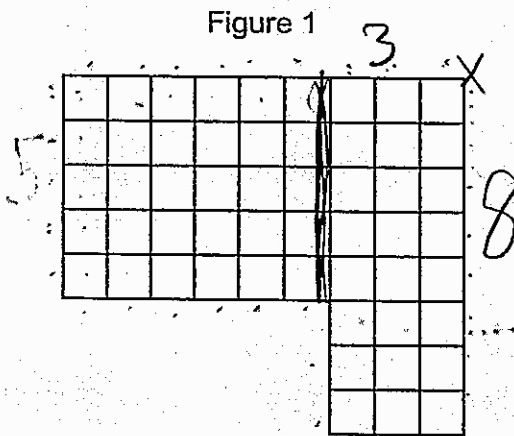
~~What~~ I did for my multiplication was, I did 9×8 which is 81 and I drew a line in the middle.

- b. Use the areas of your two rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two rectangles.




 I counted the Outside and I just don't know what its area. But anyway, I counted the outside and I got 34 and on the inside I got 54.


Now help Erin partition Figure 1 in a *different* way.



- c. Draw a line on Figure 1 above to show your new way of partitioning the whole figure into two rectangles. Write multiplication equations for the areas of each of the two rectangles.

 I wrote for my multiplication. Here is what I did. I did 8×3 which is 24 and for the other side I did 6×5 which is 30.


- d. Use the areas of your two new rectangles to find the total area of Figure 1. Explain with words or equations how you arrived at the total area using the areas of your two new rectangles.

 20 on the left side and 14 on the right side so, I think you would have to add because you wouldn't multiply so you would have to add.

$$\begin{array}{r} 20 \\ + 14 \\ \hline 34 \end{array}$$

So it is 34!

- e. Erin claims that the total areas of the two partitioned figures cannot be the same because they are partitioned in different ways. Explain why you agree or disagree with Erin's claim. Refer to your equations or the figures in your explanation.

 He is right because the shape is wrong.

Total Content Points: 0

Total Practice Points: 0

The student provides only two multiplication expressions representing areas of partitioned rectangles (8×3 and 6×5) in Part C, with no multiplication expressions provided in Part A (no credit for 3.MD.C.7b). In Part A, the student does not provide equations representing any partitioned rectangles, and therefore does not successfully decompose the entire figure into smaller rectangles in order to recompose them and arrive at the total area of the figure (no credit for 3.MD.C.7d(x)). In Part C, the student decomposes the figure into two rectangles and identifies the area of each (" 8×3 which is 24 . . . 6×5 which is 30"), but in Part D does not recompose the areas to arrive at the total area of the figure (no credit for 3.MD.C.7d(z)). The student does not provide the multiplication equations for individual rectangles, as " 8×3 which is 24" and " 6×5 which is 30" are not considered equations without an equal sign (no credit for MP4). The calculation in Part A (" 9×8 which is 81") is inaccurate (no credit for MP6). In Part E, the student's explanation does not indicate that the total area remains the same regardless of how the figure is partitioned and then recombined (no credit for MP7).

Total Awarded Points: 0 out of 6