

SECURE MATERIAL – Reader Name: _____
Tennessee Comprehensive Assessment Program

TCAP/CRA

2014



1

Phase III

How Many Shapes? Task

Anchor Set

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Grade 1 — 2013–14, Phase III
Part 2: Constructed Response Task Section

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes.
Draw circles around the two groups of shapes that Marian adds.



Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.



- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.



Scoring Guide

The CCSS for Mathematical Content (2 points)

- 1.OA.A.2 Solves three-addend story problem, and determines that 12 is the sum in part a. _____
(1 Point)
- 1.OA.B.3 Applies the associative property by solving both part b, by circling the groups of 5 and 7 or by writing the expression $5 + 7$, and part c, by circling the groups of 8 and 4 or writing the expression $8 + 4$. States or shows that both students arrive at the same sum. _____
(1 Point)

The CCSS for Mathematical Practice (3 points)

- MP1 Makes decisions and choices on how to approach the problem. Students may do this by _____
 - writing numbers representing the shapes Spencer adds in part b or Marian adds in part c; or
 - drawing circles around the triangles and squares in part b or the black shapes and the white shapes in part c.**(1 Point)**
(MP1: Make sense of problems and persevere in solving them.)
- MP3 Creates an explanation in part d to explain why Spencer and Marian are able to add different numbers and arrive at the same sum. Student may do this by: _____
 - stating that even though the numbers change both sums are the same;
 - stating that the groups are different but there are still the same number of shapes; or
 - stating that $5 + 7$ and $8 + 4$ have the same sum.**(1 Point)**
(MP3: Construct viable arguments and critique the reasoning of others.)
- MP4 Writes an expression or equation in part a to tell about the shapes. _____
(1 Point)
(MP4: Model with mathematics.)

TOTAL POINTS: 5

The CCSS for Mathematical Content Addressed In This Task

Represent and solve problems involving addition and subtraction.	
1.OA.A.2	Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
Understand and apply properties of operations and the relationship between addition and subtraction.	
1.OA.B.3	Apply properties of operations as strategies to add and subtract. ³ <i>Examples: If $8 + 3 = 11$ is known, then $3 + 8 = 11$ is also known. (Commutative property of addition.) To add $2 + 6 + 4$, the second two numbers can be added to make a ten, so $2 + 6 + 4 = 2 + 10 = 12$. (Associative property of addition.)</i>


The CCSS for Mathematical Practice Addressed in This Task


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.

How Many Shapes? Task

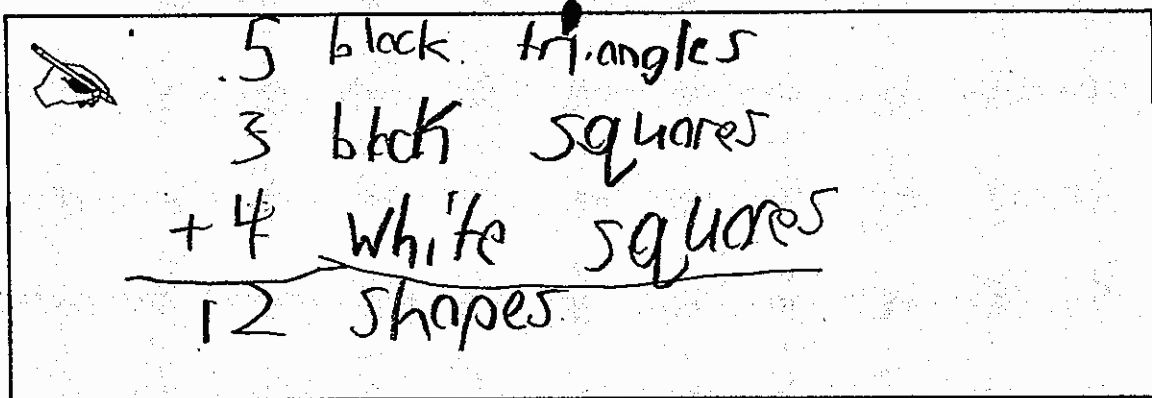
Alex put these shapes on the table.

5 black triangles 

3 black squares 

4 white squares 

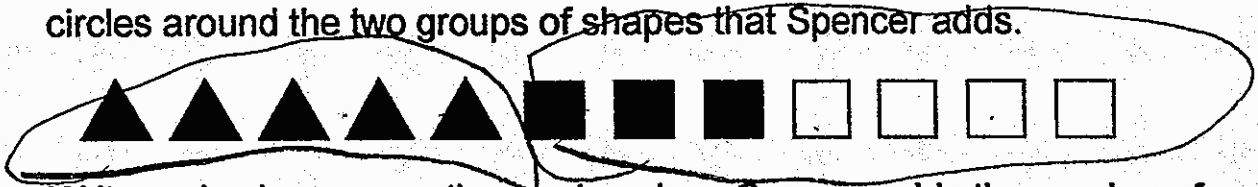
- a. Write and solve an equation to find the total number of shapes Alex put on the table.



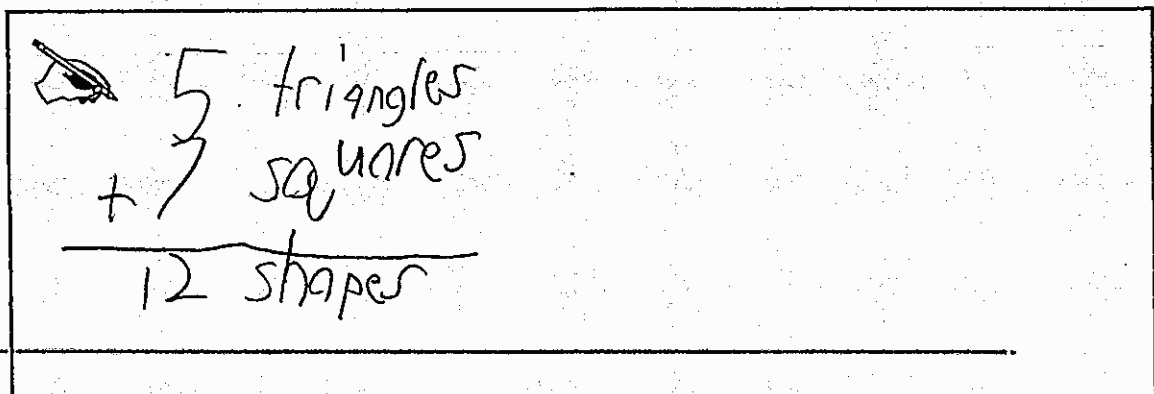
$$\begin{array}{r}
 5 \text{ black triangles} \\
 3 \text{ black squares} \\
 + 4 \text{ white squares} \\
 \hline
 12 \text{ shapes}
 \end{array}$$

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.



$$\begin{array}{r}
 5 \text{ triangles} \\
 + 7 \text{ squares} \\
 \hline
 12 \text{ shapes}
 \end{array}$$

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.



Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.

$$\begin{array}{r}
 8 \text{ black shapes} \\
 + 4 \text{ white shapes} \\
 \hline
 12 \text{ shapes}
 \end{array}$$


- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

They're both give the same answer because they had the same number of shapes but took different parts of the whole group.

How Many Shapes? Task

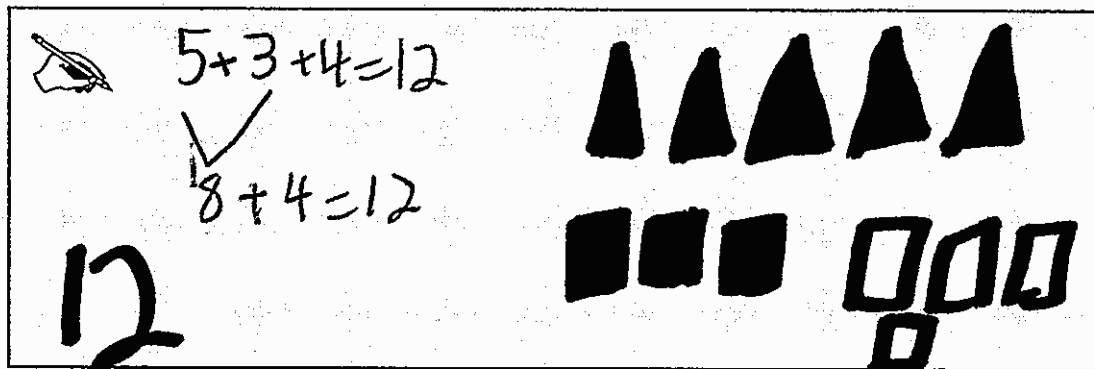
Alex put these shapes on the table.

5 black triangles 

3 black squares 

4 white squares 

- a. Write and solve an equation to find the total number of shapes Alex put on the table.

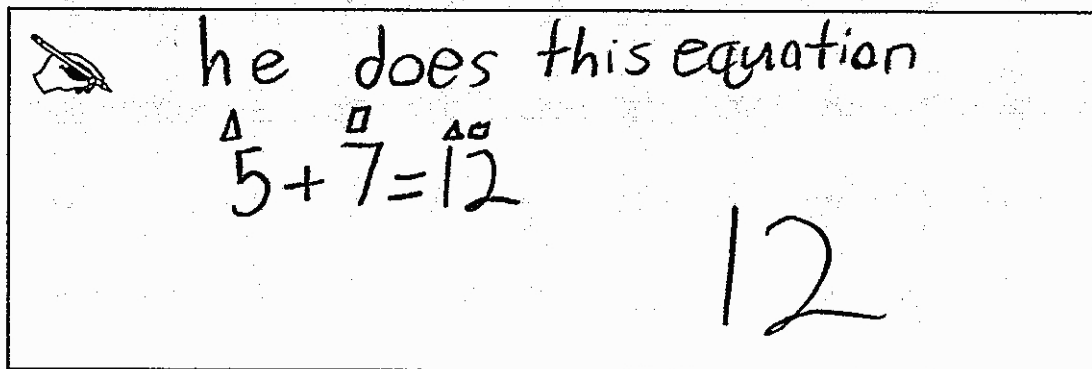


Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.




How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.




Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.

 he used this equation

$$8 + 4 = 12$$

- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

 they only had different equations because they used the same amount of shapes so they had the same total

Anchor 2 Litho 00991200176

Total Content Points: 2 (1.OA.A.2, 1.OA.B.3)

Total Practice Points: 3 (MP1, MP3, MP4)


In Part A, the student solves the three-addend story problem and finds the unknown sum (12) (1.OA.A.2). The student writes an addition expression in Part B ($5 + 7$) and also in Part C ($8 + 4$), and shows that 12 is the sum for each (1.OA.B.3). By writing the expressions and by drawing circles around the triangles and squares in Part B and the black shapes and white shapes in Part C, the student makes decisions on how to approach the problem (MP1). In Part D, the student explains why Spencer and Marian are able to add different numbers and arrive at the same sum by stating, “they used the same amount of shapes so they had the same total” (MP3). The student writes an equation in Part A to tell about the shapes ($5 + 3 + 4 = 12$) (MP4).


Total Awarded Points: 5 out of 5

How Many Shapes? Task

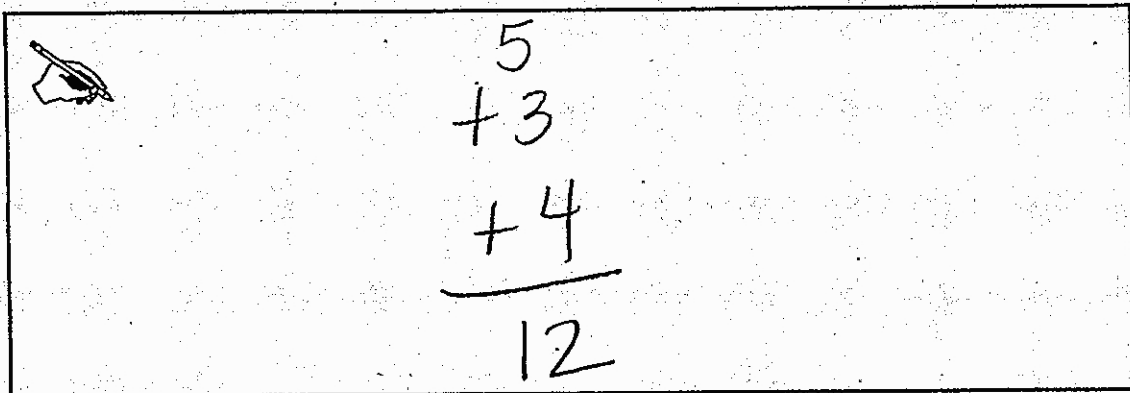
Alex put these shapes on the table.

5 black triangles 

3 black squares 

4 white squares 

- a. Write and solve an equation to find the total number of shapes Alex put on the table.



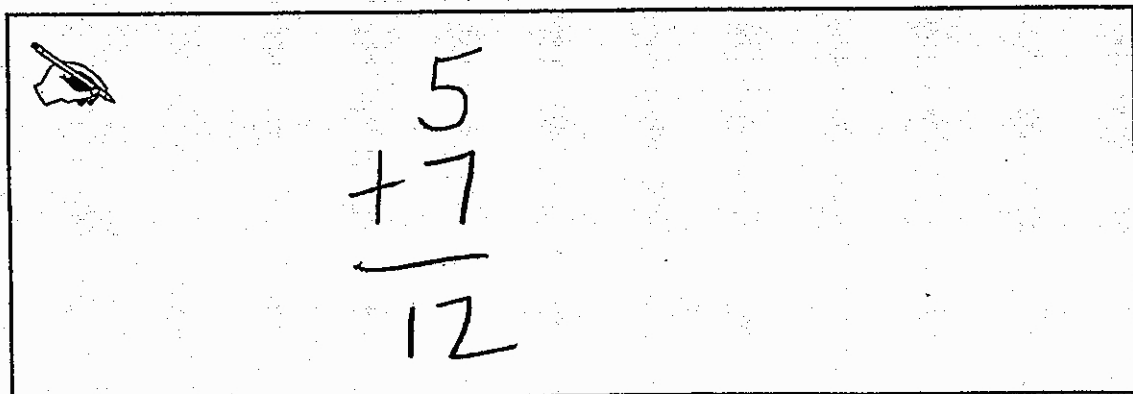
$$\begin{array}{r} 5 \\ + 3 \\ + 4 \\ \hline 12 \end{array}$$

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.




$$\begin{array}{r} 5 \\ + 7 \\ \hline 12 \end{array}$$

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.




Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.



$$\begin{array}{r} 8 \\ +4 \\ \hline 12 \end{array}$$


- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.






they are the
same

How Many Shapes? Task

Alex put these shapes on the table.

5 black triangles  3 black squares  4 white squares 

- a. Write and solve an equation to find the total number of shapes Alex put on the table.

 He 5 Δ and 3  and 4  and it makes 12, is that white.


$$\begin{array}{r} 5 \\ + 3 \\ \hline 8 \end{array}$$

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.

 If He Put all of the shapes He would have 12 shapes

$$5 + 7 = 12$$

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.



Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.

- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

How Many Shapes? Task

Alex put these shapes on the table.

5 black triangles




3 black squares



4 white squares



- a. Write and solve an equation to find the total number of shapes Alex put on the table.




$$5 + 3 + 4 = 12$$

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.




$$8 + 4 = 12$$

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.




Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.



$$8 + 4 = 12$$




- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.



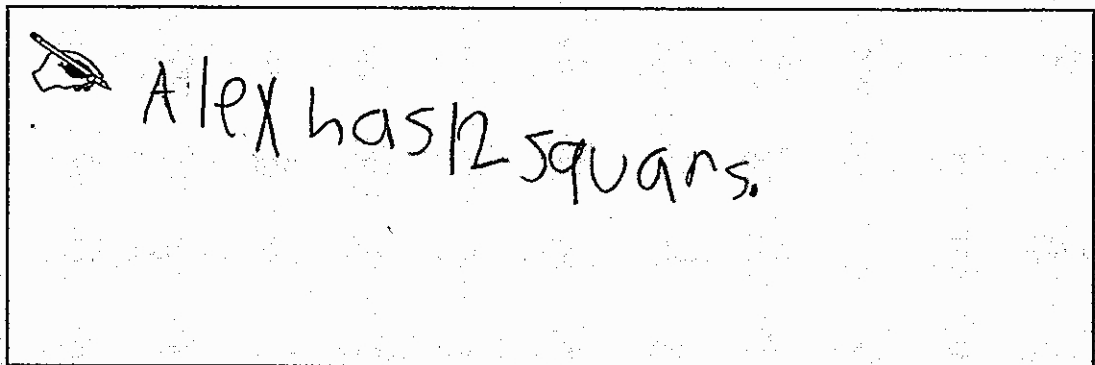
$$8 + 4 = 12$$

How Many Shapes? Task

Alex put these shapes on the table.

5 black triangles  3 black squares  4 white squares 

- a. Write and solve an equation to find the total number of shapes Alex put on the table.



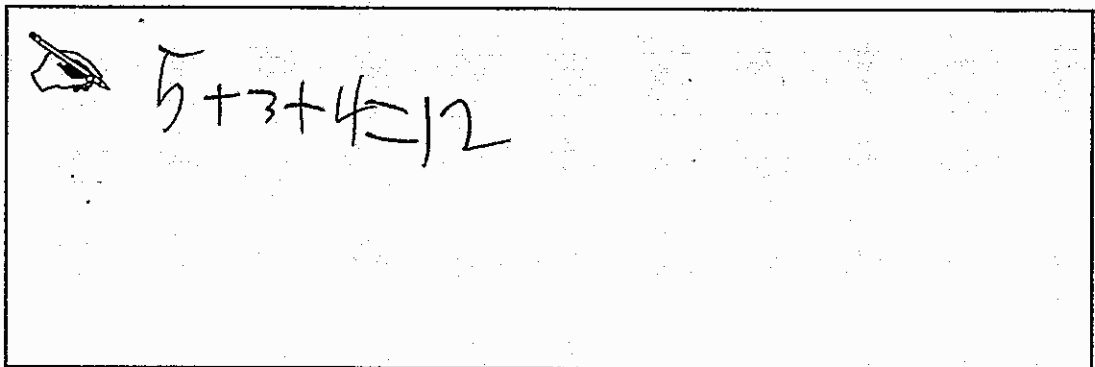
Alex has 12 squares.

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.




$5 + 3 + 4 = 12$

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.


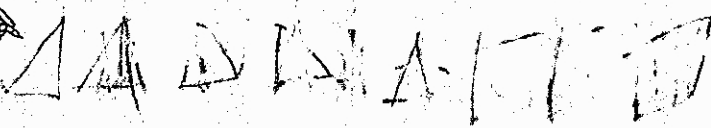


Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.



$$8 + 4 = 12$$




- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

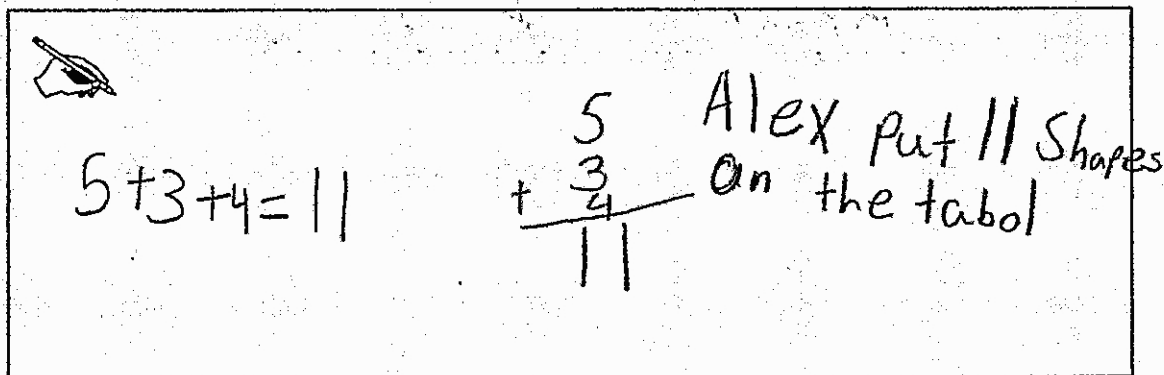
they both done it at the same time

How Many Shapes? Task

Alex put these shapes on the table.

5 black triangles  3 black squares  4 white squares 

- a. Write and solve an equation to find the total number of shapes Alex put on the table.



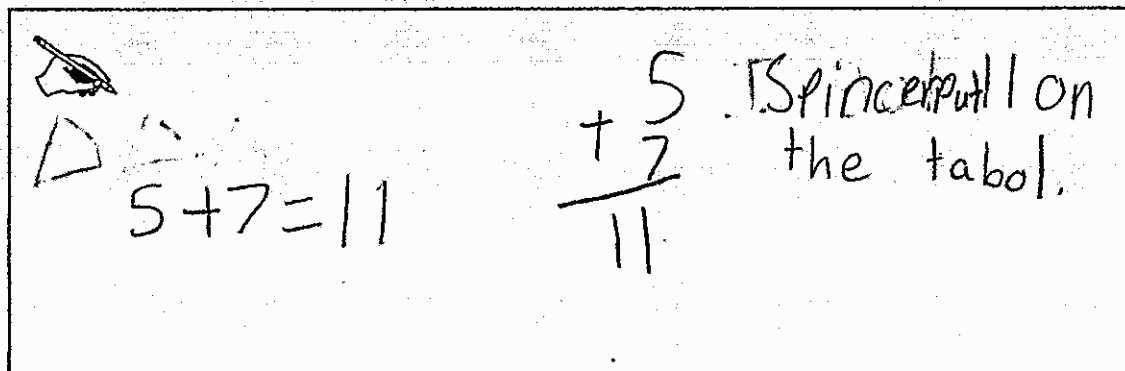
A hand-drawn solution in a rectangular box. On the left, there is a drawing of a hand holding a pencil. Next to it is the equation $5 + 3 + 4 = 11$. To the right of the equation is a vertical addition problem: $\begin{array}{r} 5 \\ + 3 \\ \hline 11 \end{array}$. To the right of the addition problem is the handwritten text "Alex put 11 shapes on the table".

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.




A hand-drawn solution in a rectangular box. On the left, there is a drawing of a hand holding a pencil. Next to it is a drawing of a triangle and the equation $5 + 7 = 11$. To the right of the equation is a vertical addition problem: $\begin{array}{r} 5 \\ + 7 \\ \hline 11 \end{array}$. To the right of the addition problem is the handwritten text "Spencer put 11 on the table".

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.



Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes:




$$8 + 4 = 12$$

$$\begin{array}{r} 8 \\ +4 \\ \hline 12 \end{array}$$

She got 12
Shapes in all.

- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.



The shapes they have is how much they add.

Anchor 7

Litho 00081200172

Total Content Points: 0

Total Practice Points: 2 (MP1, MP4)


In Part A, the student determines an incorrect sum (11) and therefore does not solve the three-addend story problem correctly (no credit for 1.OA.A.2). The student writes an addition expression in Part B ($5 + 7$) and also in Part C ($8 + 4$), but does not show that 12 is the sum for each (no credit for 1.OA.B.3). By both writing the expressions and by drawing circles around the triangles and squares in Part B and the black shapes and white shapes in Part C, the student makes decisions on how to approach the problem (MP1). In Part D, the student does not explain why Spencer and Marian are able to add different numbers and arrive at the same sum (no credit for MP3). The student writes an expression in Part A to tell about the shapes ($5 + 3 + 4$) (MP4).


Total Awarded Points: 2 out of 5

How Many Shapes? Task


Alex put these shapes on the table.

5 black triangles 

3 black squares 

4 white squares 

- a. Write and solve an equation to find the total number of shapes Alex put on the table.


 $5 + 4 + 3 = 12$ shapes There is 13 shapes.

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



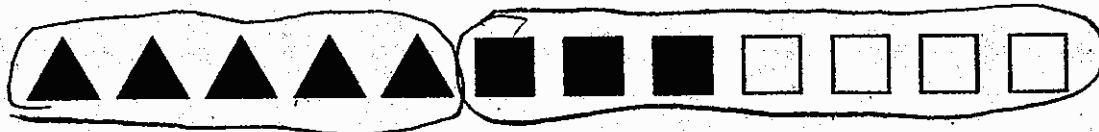
Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.

 Spencer added one more square


$5 + 8 = 13$

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.




Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.



$$7 + 5 = 12$$

- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

 $7 + 5 = 12$ so we put 12 there
and $8 + 4$ would = 12 + 0 they both = 12.

Anchor 8

Litho 00371200179

Total Content Points: 0

Total Practice Points: 2 (MP3, MP4)

In Part A, the student determines an incorrect sum (13) and therefore does not solve the three-addend story problem correctly (no credit for 1.OA.A.2). In Part B, the student does not clearly circle the groups of 5 and 7 or write the corresponding expression ($5 + 7$); in Part C, the student does not clearly circle the groups of 8 and 4 or write the corresponding expression ($8 + 4$) (no credit for 1.OA.B.3). The student does not write numbers representing the shapes that Spencer adds in Part B, or that Marian adds in Part C, or draw circles around the triangles and squares in Part B, or around the black shapes and the white shapes in Part C (no credit for MP1). In Part D, the student explains why Spencer and Marian are able to add different numbers and arrive at the same sum by indicating that $5 + 7$ and $8 + 4$ have the same sum (MP3). The student writes an expression in Part A to tell about the shapes ($5 + 4 + 3$) (MP4).

Total Awarded Points: 2 out of 5

How Many Shapes? Task

Alex put these shapes on the table.

5 black triangles ▲

3 black squares ■

4 white squares □

- a. Write and solve an equation to find the total number of shapes Alex put on the table.

5 + 3 + 4 = 12

Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.

5 + 3 + 4 = 12

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.



Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.

$$5 + 3 + 4 = 12$$

- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

$$4 + 4 = 8$$

Anchor 9

Litho 00051200176

Total Content Points: 0




Total Practice Points: 1 (MP4)

In Part A, the student determines an incorrect sum (13) and therefore does not correctly solve the three-addend story problem (no credit for 1.OA.A.2). In Part B, the student does not circle the groups of 5 and 7 or write the corresponding expression ($5 + 7$), and in Part C, does not circle the groups of 8 and 4 or write the corresponding expression ($8 + 4$) (no credit for 1.OA.B.3). The student writes $5 + 3 + 4$ in Part B, but these numbers do not represent the shapes Spencer adds, nor do the numbers in Part C represent the shapes Marian adds. The student does not draw circles around the triangles and squares in Part B or the black shapes and the white shapes in Part C (no credit for MP1). In Part D, the student does not explain why Spencer and Marian are able to add different numbers and arrive at the same sum (no credit for MP3). The student writes an expression in Part A to tell about the shapes ($5 + 3 + 4$) (MP4).

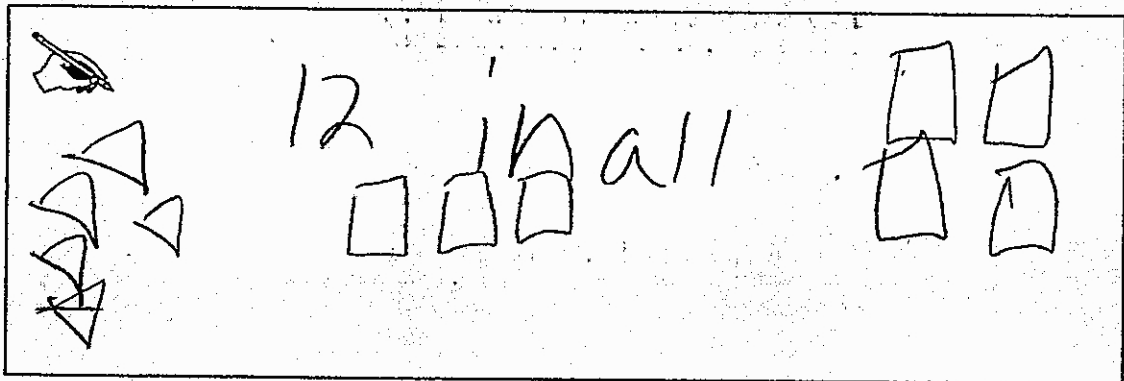
Total Awarded Points: 1 out of 5

How Many Shapes? Task

Alex put these shapes on the table.

5 black triangles  · 3 black squares  4 white squares 

- a. Write and solve an equation to find the total number of shapes Alex put on the table.

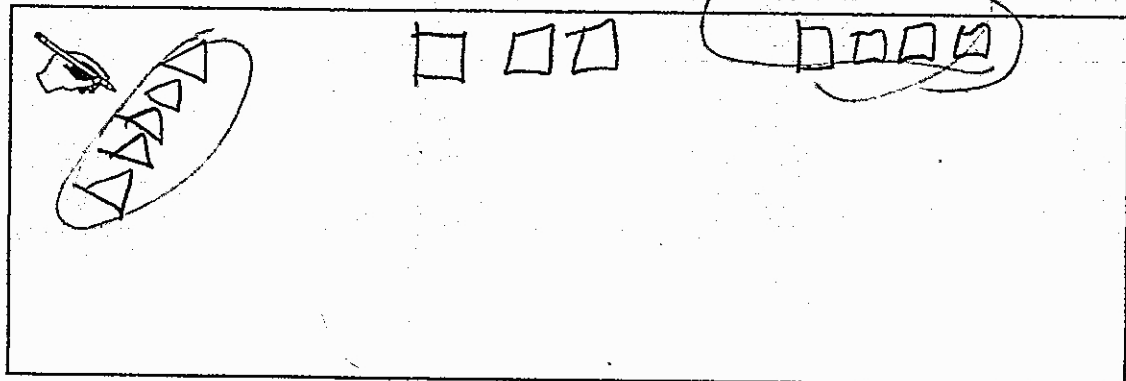


Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.



Constructed Response Assessment

How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.



Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.

- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

Anchor 10

Litho 00011200172

Total Content Points: 1 (1.OA.A.2)

Total Practice Points: 0

In Part A, the student solves the three-addend story problem to find the unknown sum (12) (1.OA.A.2). In Part B, the student does not circle the groups of 5 and 7 or write the corresponding expression ($5 + 7$), and in Part C, the student does not circle the groups of 8 and 4 or write the corresponding expression ($8 + 4$) (no credit for 1.OA.B.3). The student does not write numbers representing the shapes that Spencer adds in Part B, or that Marian adds in Part C, or draw circles around the triangles and squares in Part B, or the black shapes and the white shapes in Part C (no credit for MP1). In Part D, the student does not explain why Spencer and Marian are able to add different numbers and arrive at the same sum (no credit for MP3). The student does not write an expression or equation in Part A to tell about the shapes (no credit for MP4).

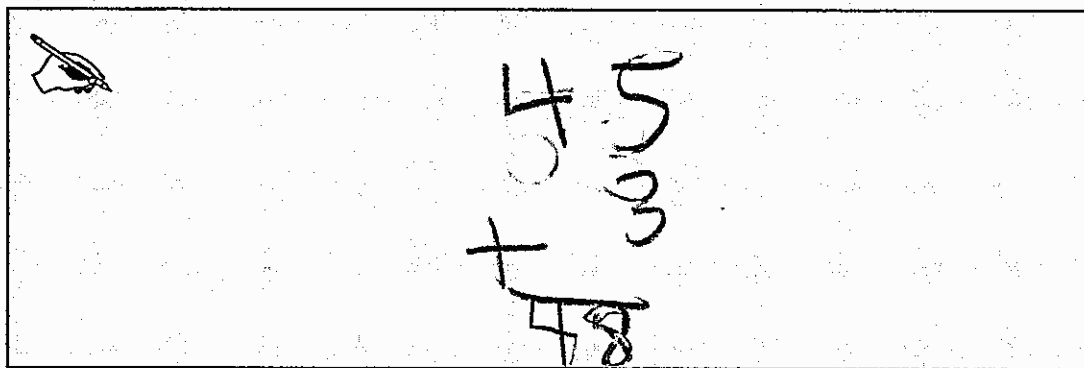
Total Awarded Points: 1 out of 5

How Many Shapes? Task

Alex put these shapes on the table.

5 black triangles ▲ 3 black squares ■ 4 white squares □

- a. Write and solve an equation to find the total number of shapes Alex put on the table.

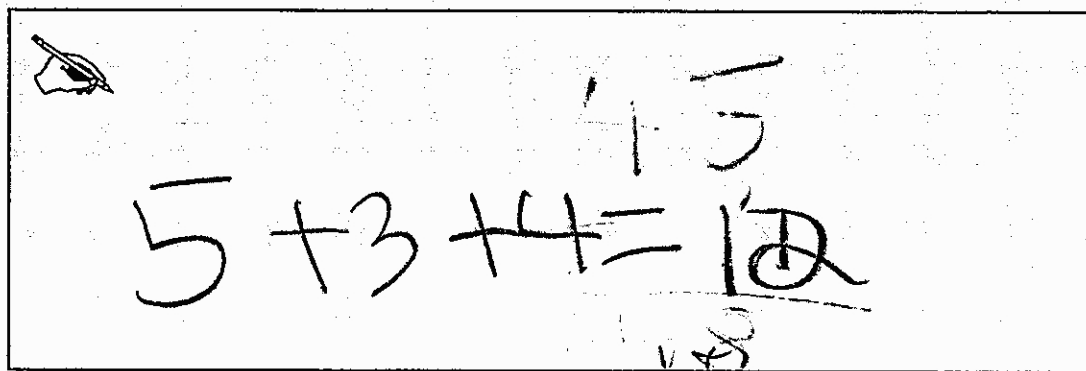


Spencer and Marian find the total number of triangles and squares.

- b. Spencer adds the number of triangles to the number of squares. Draw circles around the two groups of shapes that Spencer adds.



Write and solve an equation to show how Spencer adds the number of triangles to the number of squares.



How Many Shapes? Task

- c. Marian adds the number of black shapes to the number of white shapes. Draw circles around the two groups of shapes that Marian adds.



Write and solve an equation to show how Marian adds the number of black shapes to the number of white shapes.

$$\begin{array}{r} 10 \\ + 14 \\ \hline 24 \end{array}$$

- d. Explain why Spencer and Marian both arrive at the same answer even though they added different numbers of shapes.

$$5 + 3 + 4 = 12$$

Total Content Points: 0

Total Practice Points: 0

In Part A, the student determines an incorrect sum (48) and therefore does not solve the three-addend story problem (no credit for 1.OA.A.2). In Part B, the student does not circle the groups of 5 and 7 or write the corresponding expression ($5 + 7$), and in Part C, the student does not circle the groups of 8 and 4 or write the corresponding expression ($8 + 4$) (no credit for 1.OA.B.3). The student does not write numbers representing the shapes that Spencer adds in Part B, or that Marian adds in Part C, or draw circles around the triangles and squares in Part B, or the black shapes and the white shapes in Part C (no credit for MP1). In Part D, the student does not explain why Spencer and Marian are able to add different numbers and arrive at the same sum (no credit for MP3). The student does not write an expression or equation in Part A to tell about the shapes in the story problem (no credit for MP4).

Total Awarded Points: 0 out of 5