

# TCAP/CRA 2012-2013

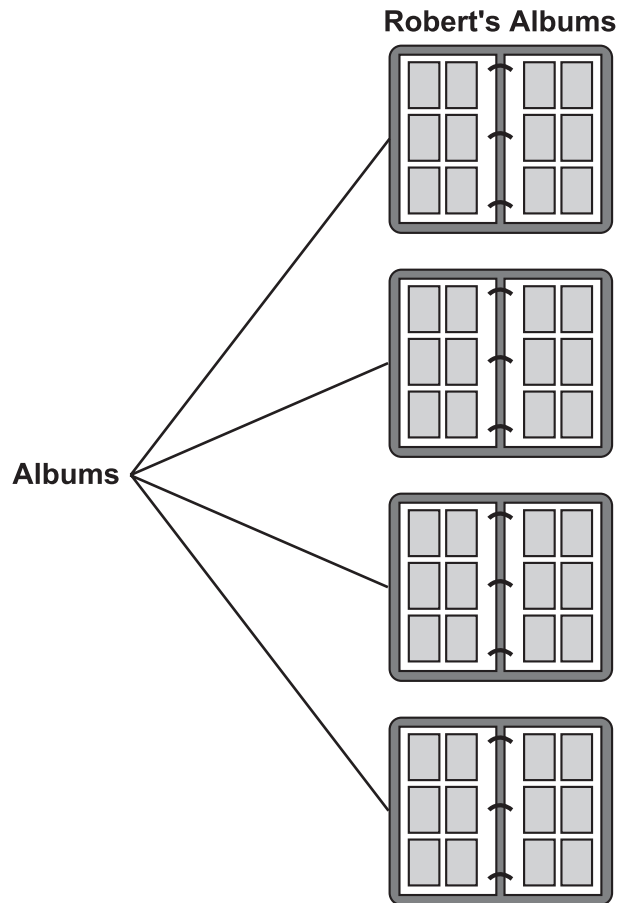


## Task 3: Album of Cards Task Full Scoring Guide

### Task 3. Album of Cards Task

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.



### 3. Album of Cards Task Scoring Guide

#### The CCSS for Mathematical Content (2 points)

3.OA.3(a) The student writes multiplication equations, expressions, or descriptions that describe the cards in the albums. \_\_\_\_\_

3.OA.3(b) The student provides an explanation or labels that make use of multiplication to show understanding of how the parts relate to the total number of cards. The student may describe: \_\_\_\_\_

- three rows of cards, with four cards in each row, in each of four albums.
- six cards on a page, with two pages in each album, in each of four albums.
- twelve cards in an album, in each of four albums.

**Total Content Points** \_\_\_\_\_

#### The CCSS for Mathematical Practice (4 points)

MP1 The student makes sense of the word problem by finding and explaining two correct solution paths that indicate an understanding of the situation. \_\_\_\_\_

(MP1: Make sense of problems and persevere in solving them.)

MP2 The student writes equations and re-contextualizes the equations within the context of the task. Provides labels or an explanation that indicates the relationship of the equations to the context of the situation. \_\_\_\_\_

(MP2: Reason abstractly and quantitatively.)

MP4 The student provides an equation that models a solution pathway. \_\_\_\_\_

(MP4: Model with mathematics.)

MP6 The student provides equations and explanations that are accurate. \_\_\_\_\_

(MP6: Attend to precision.)

**Total Practice Points** \_\_\_\_\_

**Total Awarded Points** \_\_\_\_\_

## **The CCSS for Mathematical Content Addressed in This Task**

### **Represent and solve problems involving multiplication and division.**

- 3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

### **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.

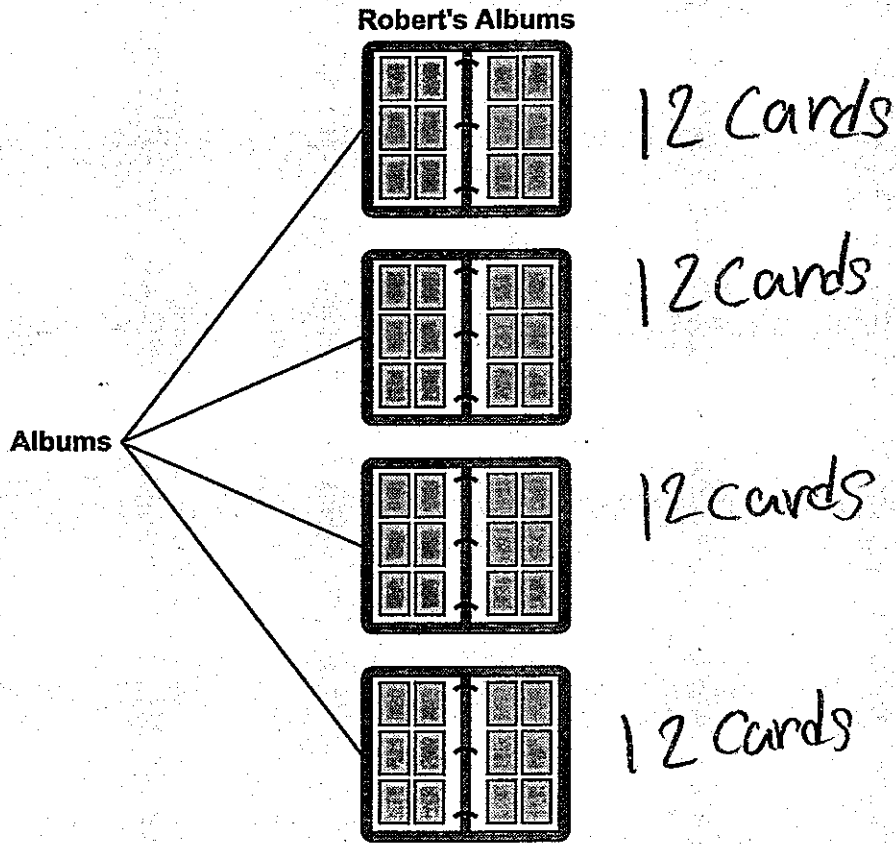
\*Gray text indicates Mathematical Practices that are not addressed in this task.

Students' responses to a mathematical task provide evidence of what they understand and are able to do in relation to the standards and practices. Across tasks, this cumulative evidence shows students' understanding and abilities within a domain. When students do not respond completely to all parts of a task, they provide insufficient evidence of their mathematical understanding and abilities and therefore do not fully demonstrate the expectations of the standards and practices aligned with that task.

**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

Way # 1 / If Robert has 4 albums, and there are six in each side, you can multiply.

$6 \times 2 = 12$        $\begin{array}{r} 12 \\ \times 4 \\ \hline 48 \end{array}$        $\boxed{48!}$   
 cards in all.

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Way # 2 / If there are 6 cards on each side, you can multiply only one side and then add the answer with the same number

$6 \times 4 = 24$        $\begin{array}{r} 24 \\ + 24 \\ \hline 48 \end{array}$

Guide 1

Litho 1613

Total Content Points: 2 (3.0A.3(a), 3.0A.3(b))

Total Practice Points: 4 (MP1, MP2, MP4, MP6)

Solutions in this response are based on two multiplication equations ( $6 \times 2 = 12$ ,  $6 \times 4 = 24$ ) which use three factors in total to describe the cards in the albums (3.0A.3(a)). The student uses the equations to show two solution paths for finding a total of 48 cards (3.0A.3(b)) and MP4). The student's multiplication equations indicate an understanding of the problem, with all parts of the task completed (MP1). The student shows that each album contains 12 cards and four albums equals 48 cards (MP2). Accurate equations and explanations, with correct labeling referring to the 48 cards in total, show attention to precision (MP6).

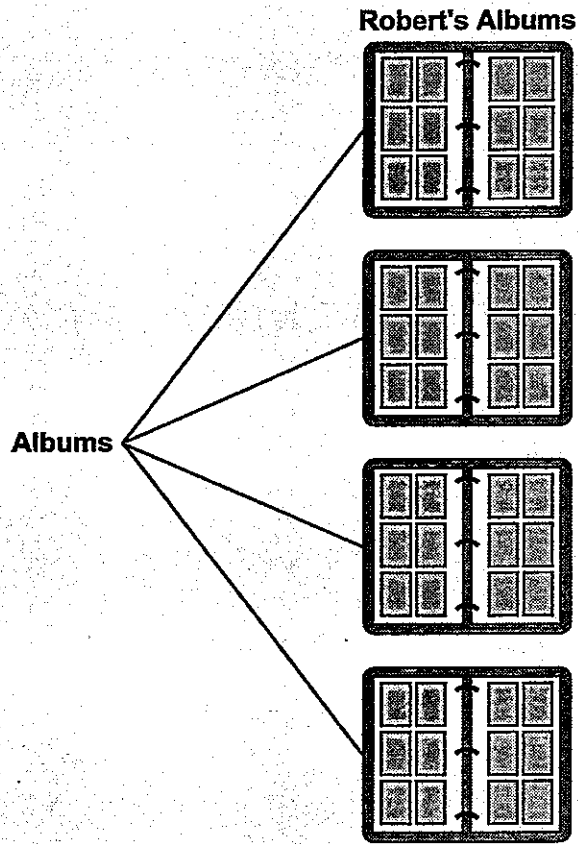
Total Awarded Points: 6 out of 6




**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.




Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.



the first way is to multiply  $12 \times 4$  because if each side has 6 and there are two sides then  $6+6=12$  and there are 4 albums then  $12 \times 4 = 48$

or you could just look at it and say well there is 12 cards in each album and 4 albums so  $12+12+12+12=48$

or you could just split that in half and say  $12+12=24$  and then you have 2 twelves left so you make that into 24 and then  $24 \times 2 = 48$

Page 11 2 GO ON TO THE NEXT PAGE. 

2 twelves left so you make that into 24 and then  $24 \times 2 = 48$

Guide 2

Litho 1473

Total Content Points: 2 (3.0A.3(a), 3.0A.3(b))

Total Practice Points: 4 (MP1, MP2, MP4, MP6)

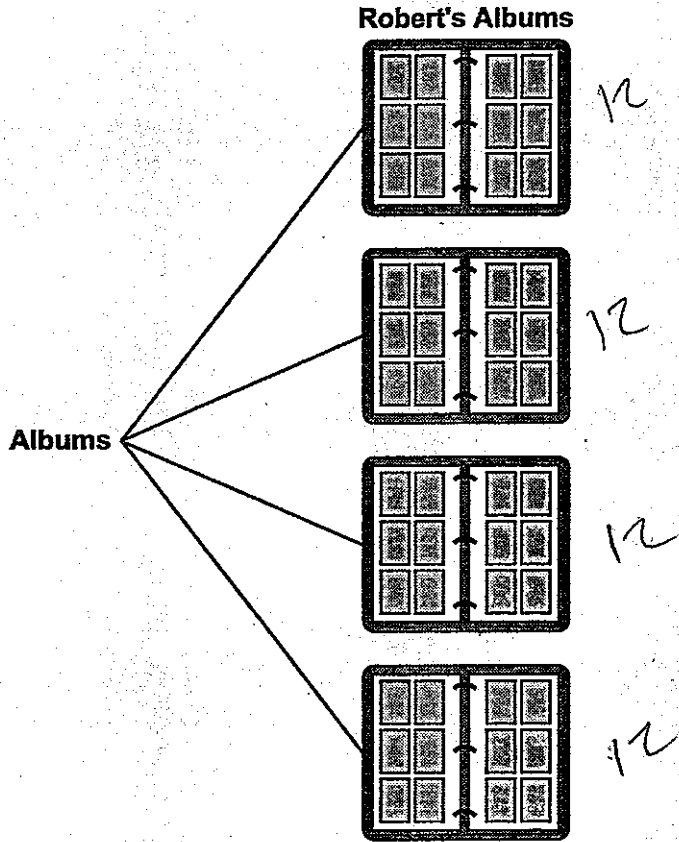
The student gives a multiplication equation  $12 \times 4 = 48$  for the first solution and uses addition and division to find a second solution (3.0A.3(a), MP4). The student shows understanding of how the parts relate to total number of cards by explaining the factors; “each side has 6...two sides...4 albums” (3.03(b)). The two different, but correct, solutions complete the task (MP1). The student labels values as cards and albums and relates the equations to the context of the problem (MP2). The equations and explanations are accurate (MP6).

Total Awarded Points: 6 out of 6

**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.



$$12 \times 4 = 48$$

$$4 \times 12 = 48$$

This equation helps because there are 12 cards in each album and there are 4 albums.

This equation helps because there are 4 albums and 12 cards in each album.

Guide 3

Litho 1571

Total Content Points: 2 (30A.3(a), 30A.3(b))

Total Practice Points: 3 (MP2, MP4, MP6)

This response contains a multiplication equation,  $12 \times 4 = 48$ , a correct solution to the word problem (3.0A.3(a), MP4). The student provides an explanation relating to this equation, stating that there are 12 cards in each album and 4 albums altogether (3.0A.3(b)). There is only one solution provided, leaving part of the task incomplete (no credit for MP1). The student's interpretation of the problem correctly indicates the relationship of the equations to the solution of the problem (MP2). The equation  $12 \times 4 = 48$  is accurate (MP6).

Total Points Awarded: 5 out of 6



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

So you can do

$$\begin{array}{r} 12 \\ +12 \\ +12 \\ +12 \\ \hline 48 \end{array}$$

way 1.

$$\begin{array}{r} 6+6=12 \\ 6+6=12 \\ 6+6=12 \\ 6+6=12 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 12+12=24 \\ 12+12=24 \\ \hline 48 \end{array}$$

or you can do

$$\begin{array}{r} 12+12=24 \\ 12+12=24 \\ \hline 48 \end{array}$$

way 2.

$$\begin{array}{r} 24 \\ +24 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 12+12 \\ +12+12 \\ \hline 24+24=48 \end{array}$$



Guide 4

Litho 1435

Total Content Points: 0

Total Practice Points: 4 (MP1, MP2, MP4, MP6)

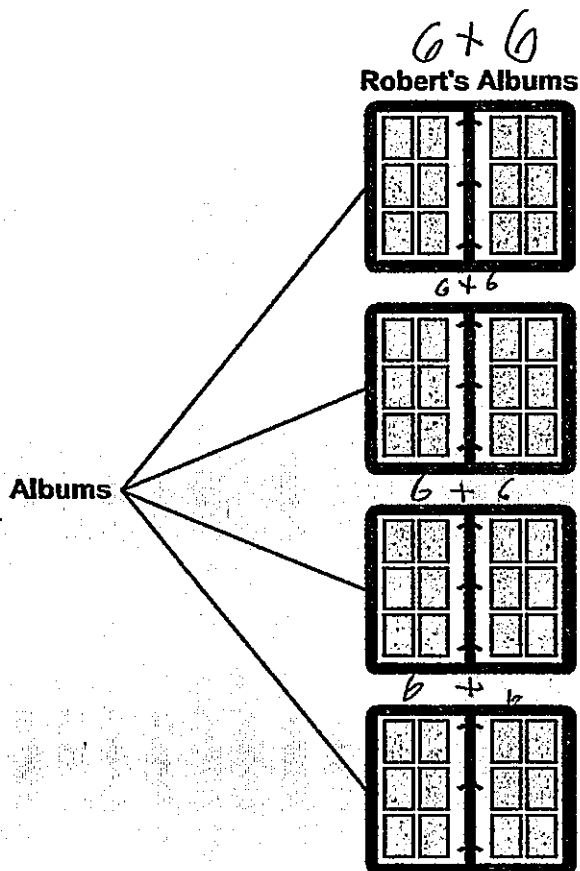
The student does not include any multiplication equations or expressions in the response (no credit for 3.0A.3(a)). The student does not provide an explanation that shows an understanding of how the parts relate to the total number of cards in a multiplication equation (no credit for 3.0A.3(b)). The student uses two solution paths with addition ( $12 + 12 = 24$ ,  $24 + 24 = 48$ ) to arrive at the correct answer of 48 to complete the task (MP1). The student provides labels, referring to 48 as the total number of cards (MP2). The addition expressions ( $12 + 12 = 24$ ,  $24 + 24 = 48$ ) used are relevant and solved accurately (MP4, MP6).

Total Awarded Points: 4 out of 6

**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.



$4 \times 12 = 48$  cards

Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

COUNT

$6 + 6$   
 $6 + 6$

$48 \div 4 = 12$

$12 \times 4 = 48$

Guide 5

Litho 8309

Total Content Points: 1 (3.0A.3(a))

Total Practice Points: 2 (MP2, MP4)

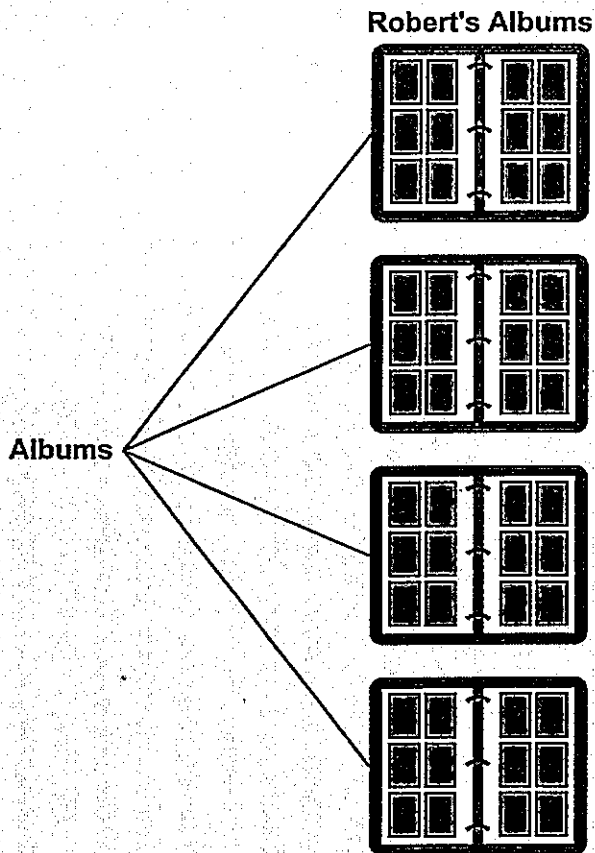
This response uses a multiplication equation,  $4 \times 12 = 48$ , describing the amount of cards in the four albums (3.0A.3(a), MP4). There are no explanations written to show an understanding of how the parts relate to the total number of cards (no credit for 3.0A.3(b)). The student correctly interprets how to find the total amount of cards and labels the albums as having 6 + 6 cards in each and 48 cards altogether (MP2). However, since the response lacks a carefully formulated explanation of two correct solution paths, the task was not completed accurately (no credit MP1, no credit for MP6).

Total Awarded Points: 3 out of 6

**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

Two ways you can find the total of baseball cards is Multiply and divid. 1 way if you want to multiply is count by 12s till you count 4 12s.  $12+12+12+12=48$  so  $12 \times 4 = 48$   
 or  $4 \times 12 = 48$

Another way is to divid. You could take the 48 albums and divid. Like this.  $48 \div 4 = 12$  or  $48 \div 12 = 4$ .

Multiply

$$12 \times 4 = 48$$

or

$$4 \times 12 = 48$$

divid

$$48 \div 4 = 12$$

or

$$48 \div 12 = 4$$

Guide 6

Litho 8401

Total Content Points: 1 (3.0A.3(a))

Total Practice Points: 1 (MP4)

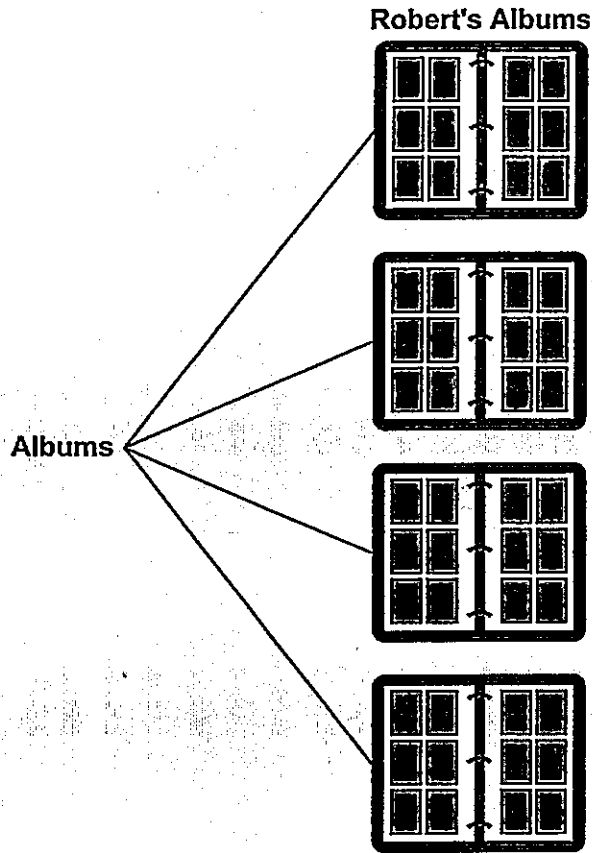
This response contains a correct multiplication equation,  $4 \times 12 = 48$  that models a solution pathway for this problem (3.0A.3(a), MP4). No reason is given for why 12 is used as a value, and the explanation refers to 48 as representing the amount of albums, not cards (no credit 3.0A.3(b)). Thus, the student has not fully made sense of the problem (no credit for MP1). Incorrect labeling (48 albums) indicates a lack of understanding of the relationship of the equations to the context of the problem (no credit for MP2) and inaccuracy in the response (no credit for MP6).

Total Points Awarded: 2 out of 6

**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.





Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

11	12	3
$\begin{array}{r} 6 \\ + 6 \\ \hline 12 \end{array}$	$2 \times 6 = 12$	$\begin{array}{r} 8 \\ + 4 \\ \hline 12 \end{array}$
<p>This equation describes the baseball cards in the album because its telling if theres six on each page two pages would = 12 baseball cards.</p>	<p>This equation describes the baseball cards in the album because its telling you if theres 6 cards on each page you just can skip count on the other page by 2's so you multiply 2 and 6 and you get 12</p>	<p>This equation describes the baseball cards in the album because its telling you count by 4 you will get 8 and have 4 left so you add that and you get 12.</p>

Guide 7

Litho 8364

Total Content Points: 1 (3.0A.3(b))

Total Practice Points: 0

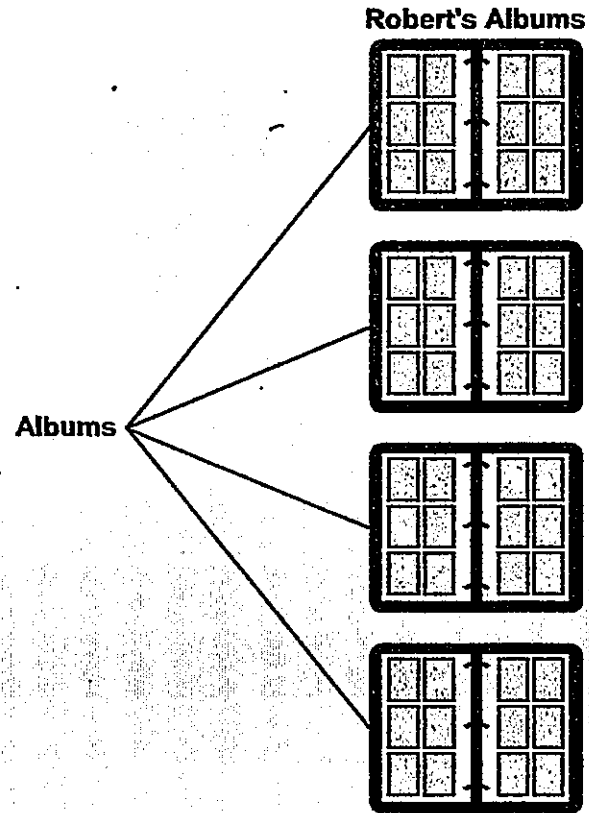
The student does not provide a multiplication equation to determine how many total cards are in the albums (no credit for 3.0A.3(a), no credit for MP4). In the first column of the explanation, the student reasons that “if there’s six on each page two pages would = 12 baseball cards,” thus relating parts to the total for one album (3.0A.3(b)). The student was unclear about what was being asked in this task. Mathematical problems and explanations provide a solution for how many cards would be in only one album, not all four albums (no credit MP1). Misinterpretation of the task leads to incomplete understanding of related values (no credit for MP2). Without solutions determining a total of 48, the response is incomplete and inaccurate (no credit for MP6).

Total Awarded Points: 1 out of 6

**Task 3. Three Problems Task**

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Robert has a total of 4 baseball card albums.



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

The student has written two equations to describe the total number of cards (48) in the albums:

- Equation 1:  $6 \times 8 = 48$ . This represents 6 albums with 8 cards each.
- Equation 2:  $6 \times 6 \times 6 = 48$ . This represents 6 albums with 6 cards each.

The work is enclosed in a hand-drawn oval. There is a small drawing of a hand holding a pencil in the top left corner of the oval. The word "or" is written between the two equations.

Guide 8

Litho 8271

Total Content Points: 1 (3.0A.3(a))

Total Practice Points: 0

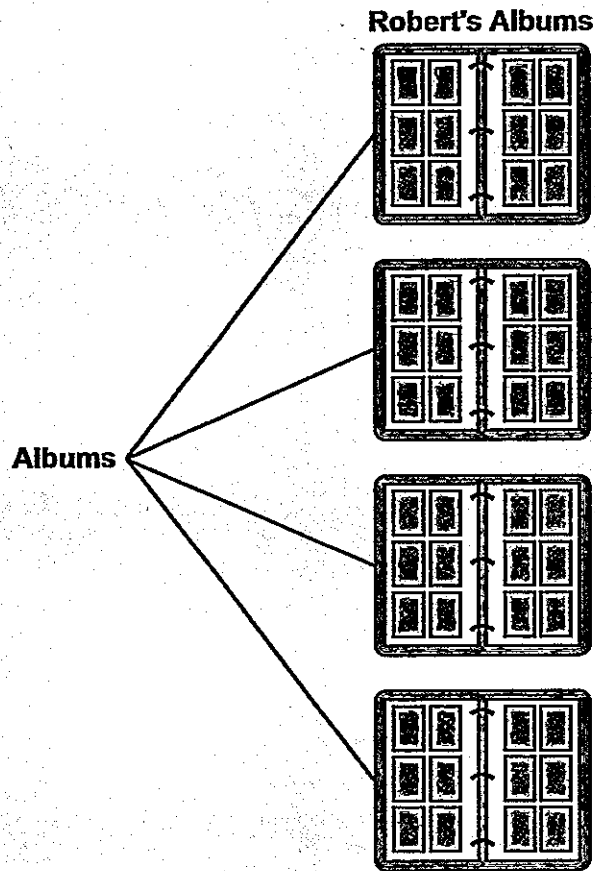
The student uses the expression  $6 \times 8$  to find the correct solution of 48 (3.0A.3(a)). However, no explanation is given for what the numbers represent (no credit for 3.0A.3(b), MP6). The response gives no indication with diagrams or labels to illustrate the student's process for determining what was being asked in this task (no credit for MP2). The student has not fully made sense of the problem because only one solution path is provided and no explanations are provided (no credit for MP1). No equation is used to model the solution (no credit for MP4).

Total Awarded Points: 1 out of 6


**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

 One equation is  $6 \times 2 \times 2 = 24$   
Another equation is  $12 \times 1 \times 2 = 24$

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The first equation describes the baseball cards in the albums because  $6 \times 2 = 12$  and  $12 \times 2 = 24$  so  $6 \times 2 \times 2 = 24$

---

The second equation describes the baseball cards in the album because  $12 \times 1 = 12$  and  $12 \times 2 = 24$  so  $12 \times 1 \times 2 = 24$ .

Total Content Points: 0

Total Practice Points: 0

Although this response shows equations, none of them correspond to the total amount of cards in the 4 albums (no credit for 3.0A.3(a)). The explanations are incorrect and incomplete since the student only solves to 24 (no credit for 3.0A.3(b), no credit for MP6). The student's inability to produce correct strategies for this task shows a lack of understanding (no credit for MP1, no credit for MP2). The equations given do not indicate an understanding of how to model this problem (no credit for MP4).

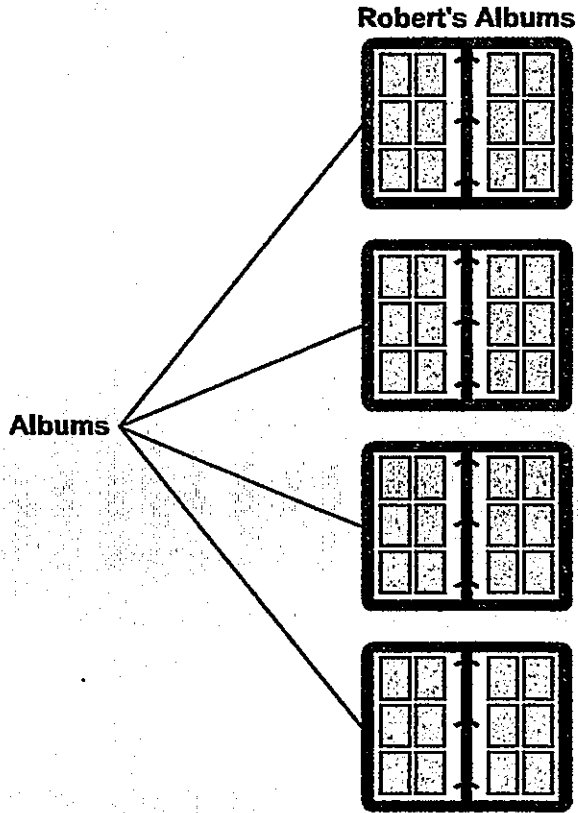
Total Awarded Points: 0 out of 6




**Task 3. Three Problems Task**

Robert's baseball card albums hold 6 baseball cards on the left side and 6 on the right side.

Robert has a total of 4 baseball card albums.



Robert claims that he can find the total number of cards in all of the albums in two different ways. Describe the cards in the albums by writing two *different* equations that have 3 factors each. Explain how each equation describes the baseball cards in the albums.

 He can multiply.

$$\begin{array}{r} \times 6 \\ 12 \\ \hline 48 \end{array}$$

He can divide.

$$\begin{array}{r} 4 \times 3 \\ \hline 12 \\ 32 \\ \hline 0 \end{array} \quad \begin{array}{r} 4 \\ \hline 3 \\ \hline 12 \end{array}$$


Total Content Points: 0

Total Practice Points: 0

Even though this student arrives at 48 as the final product, initially multiplying  $6 \times 6 = 12$  is incorrect (no credit for 3.0A.3(a), no credit for MP4). No explanation is provided to show an understanding of what is being asked in the problem (no credit for 3.0A.3(b), no credit for MP6). In addition, the student divides 12 by 4, which is irrelevant to the context. By providing one unclear solution and one irrelevant solution, the student shows incomplete understanding of the task (no credit for MP1, no credit for MP2).

Total Awarded Points: 0 out of 6