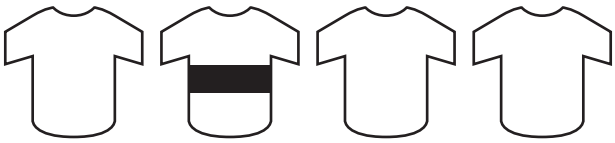
New England Common Assessment Program

Released Items Support Materials 2006

Grade 3 Mathematics

N&O 2.1 **Demonstrates conceptual understanding of rational numbers with respect to: whole numbers** from 0 to 199 using place value, by applying the concepts of equivalency in composing or decomposing numbers (e.g., 34 = 17 + 17; 34 = 29 + 5); and in expanded notation (e.g., 141 = 1 hundred + 4 tens + 1 one or 141 = 100 + 40 + 1) **using models, explanations, or other representations**; and **positive fractional numbers** (benchmark fractions: $a/2$, $a/3$, or $a/4$, where a is a whole number greater than 0 and less than or equal to the denominator) as a part to whole relationship in area and set models where the denominator is equal to the number of parts in the whole **using models, explanations, or other representations**.

1 Look at this set of shirts.



What fraction of the set of shirts has a stripe?

- ○ A. $\frac{1}{4}$
- ○ B. $\frac{1}{3}$
- ○ C. $\frac{3}{1}$
- ○ D. $\frac{4}{1}$

N&O 2.2 **Demonstrates understanding of the relative magnitude of numbers** from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using "1 more", "1 less", "10 more", "10 less", "100 more", or "100 less"; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

2 Lin is thinking of a number.

- The number is greater than 58.
- The number is less than 65.

Which number could be Lin's number?

○ A. 85
○ B. 61
○ C. 55
○ D. 67

N&O 2.3 **Demonstrates conceptual understanding of mathematical operations involving** addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.

3 There are 7 boys, 9 girls, and 5 adults at a party. How many people are at the party altogether?

○ A. 11
○ B. 16
○ C. 21
○ D. 22

N&O 2.3 **Demonstrates conceptual understanding of mathematical operations involving** addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.

4 Kim scored 30 points in a basketball game. Adam scored 10 fewer points than Kim. How many points did Adam score?

- A. 10
- B. 20
- C. 30
- D. 40

N&O 2.5 **Demonstrates understanding of monetary value** by adding coins together to a value no greater than $1.99 and representing the result in dollar notation; making change from $1.00 or less, or recognizing equivalent coin representations of the same value (values up to $1.99).

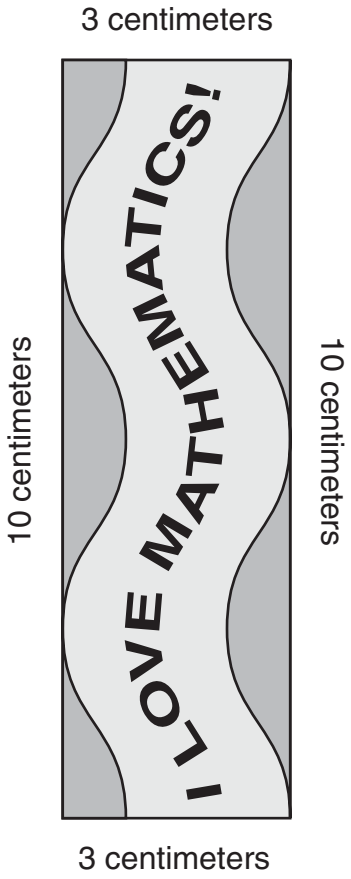
5 Emily has these coins.

What is the total value of Emily's coins?

- A. $1.30
- B. $1.25
- C. $1.03
- D. $0.93

G&M 2.6 **Demonstrates conceptual understanding of perimeter and area** by using models or manipulatives to surround and cover polygons.

6 Look at this bookmark.



What is the distance around this bookmark?

- A. 6 centimeters
- B. 13 centimeters
- C. 16 centimeters
- D. 26 centimeters

G&M 2.7 **Measures and uses units of measures appropriately and consistently, and makes conversions within systems when solving problems** across the content strands.

7 A movie is 115 minutes long. Which statement about this movie is true?

- ○ A. The movie is less than 2 hours long.
- ○ B. The movie is exactly 2 hours long.
- ○ C. The movie is more than 2 hours long.

F&A 2.4 **Demonstrates conceptual understanding of equality** by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition or subtraction)

8 Look at this number sentence.

$$\mathbf{12 - 7 = \square - 3}$$

What number makes this number sentence true?

- ○ A. 2
- ○ B. 5
- ○ C. 7
- ○ D. 8

DSP 2.1 **Interprets a given representation** (pictographs with one-to-one correspondence, line plots, tally charts, or tables) to answer questions related to the data, or to analyze the data to formulate conclusions.

(IMPORTANT: *Analyzes data consistent with concepts and skills in M(DSP)–2–2.*)

9 This pictograph shows the animals on Ms. Howe's farm.

Animals on Ms. Howe's Farm

Cows	x x x x x
Horses	x x
Goats	x x x
Pigs	x x x x

Key

x represents 1 animal

How many more cows than goats are on Ms. Howe's farm?

- A. 1
- B. 2
- C. 3
- D. 5

DSP 2.2 **Analyzes patterns, trends, or distributions in data in a variety of contexts by determining or using** more, less, or equal.

10 Look at this tally chart.

Favorite Color

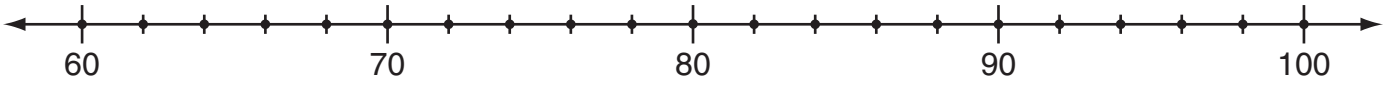
Red	||||
Blue	~~||||~~	
Purple	|||
Yellow	||
Green	~~||||~~

What colors were the favorites of four or more people?

- A. yellow
- B. purple and yellow
- C. red, blue, and green
- D. red, blue, yellow, and green

N&O 2.2 **Demonstrates understanding of the relative magnitude of numbers** from 0 to 199 by ordering whole numbers; by comparing whole numbers to each other or to benchmark whole numbers (10, 25, 50, 75, 100, 125, 150, or 175); by demonstrating an understanding of the relation of inequality when comparing whole numbers by using "1 more", "1 less", "10 more", "10 less", "100 more", or "100 less"; or by connecting number words and numerals to the quantities they represent using models, number lines, or explanations.

11 Look at this number line.



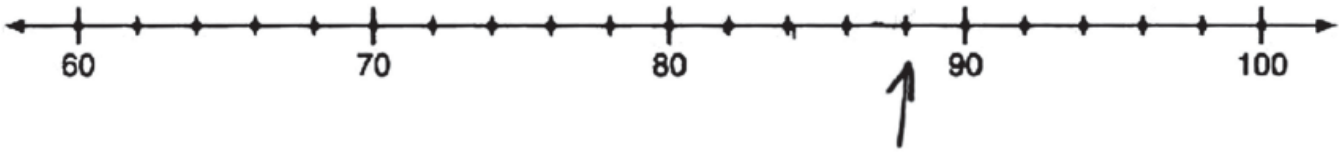
Put an "X" on the point that represents 10 more than 78.

Scoring Guide

Score	Description
1	Marks the dot representing 88 (1st dot to the left of 90)
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Score Point 1
(Example A)

11 Look at this number line.



Put an "X" on the point that represents 10 more than 78.

Student correctly points to the dot representing 88.

Score Point 1
(Example B)

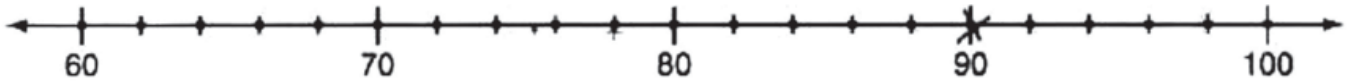
11 Look at this number line.

Put an "X" on the point that represents 10 more than 78.

Student correctly marks the dot representing 88.

Score Point 0
(Example A)

11 Look at this number line.



Put an "X" on the point that represents 10 more than 78.

Student's response is incorrect.

Score Point 0
(Example B)

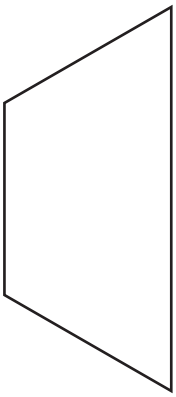
11 Look at this number line.

Put an "X" on the point that represents 10 more than 78.

Student does not represent 88 on the number line.

G&M 2.1 **Uses properties, attributes, composition, or decomposition to sort or classify** polygons or objects by a combination of two or more non-measurable or measurable attributes.

12 Look at the trapezoid below.



Use **two different** shapes from your envelope to make this trapezoid. Trace the shapes to show how they fit together to make this trapezoid.

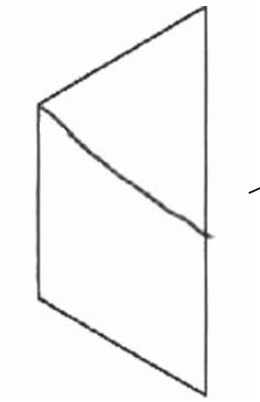
Scoring Guide

Score	Description
1	Uses the two correct shapes, **triangle T and rhombus R**, to make this trapezoid.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Note: Give credit if student draws a correct line on the trapezoid.

SCORE POINT 1
(EXAMPLE A)

⓬ Look at the trapezoid below.

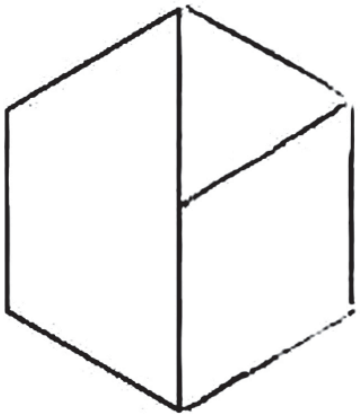


Student correctly shows two different shapes that fit together to make this trapezoid.

Use **two different** shapes from your envelope to make this trapezoid. Trace the shapes to show how they fit together to make this trapezoid.

SCORE POINT 1
(EXAMPLE B)

12 Look at the trapezoid below.

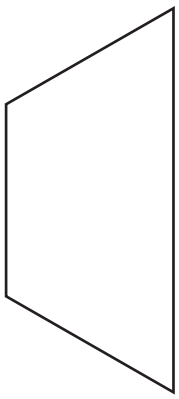


Student correctly shows two different shapes that fit together to make this trapezoid.

Use **two different** shapes from your envelope to make this trapezoid. Trace the shapes to show how they fit together to make this trapezoid.

SCORE POINT 0
(EXAMPLE A)

⓬ Look at the trapezoid below.

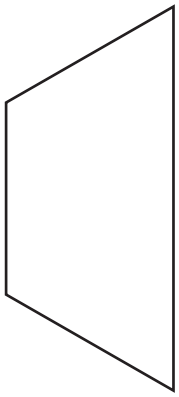


Use **two different** shapes from your envelope to make this trapezoid. Trace the shapes to show how they fit together to make this trapezoid.

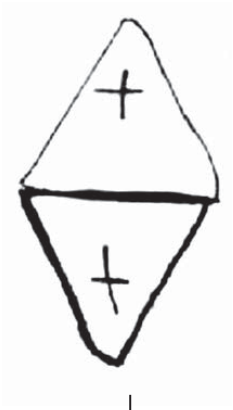
Student does not show how the two shapes fit together to make the trapezoid.

SCORE POINT 0
(EXAMPLE B)

⓬ Look at the trapezoid below.



Use **two different** shapes from your envelope to make this trapezoid. Trace the shapes to show how they fit together to make this trapezoid.

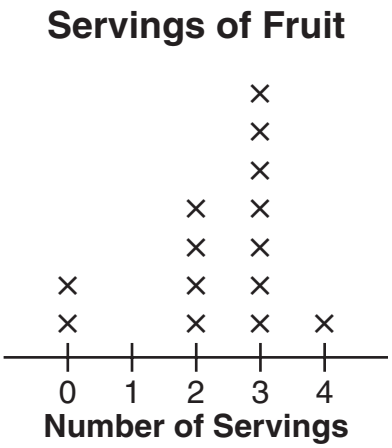


Student does not use two shapes that fit together to make the trapezoid.

DSP 2.1 **Interprets a given representation** (pictographs with one-to-one correspondence, line plots, tally charts, or tables) to answer questions related to the data, or to analyze the data to formulate conclusions.

(IMPORTANT: *Analyzes data consistent with concepts and skills in M(DSP)–2–2.*)

13 This line plot shows how many servings of fruit each of Mr. Langer's students had yesterday.



Key

× represents 1 student

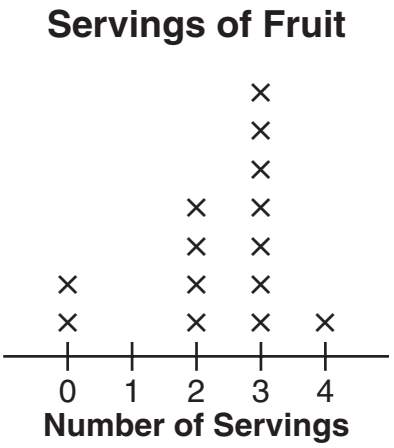
How many students had exactly one serving of fruit yesterday?

Scoring Guide

Score	Description
1	Student has the correct answer, **0 or none**.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Score Point 1
(Example A)

⓭ This line plot shows how many servings of fruit each of Mr. Langer's students had yesterday.



Key
× represents 1 student

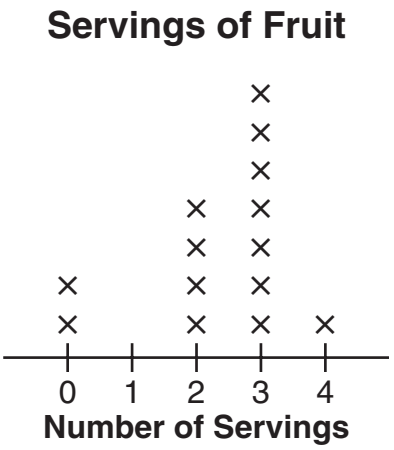
How many students had exactly one serving of fruit yesterday?

0

Student's answer is correct.

Score Point 0
(Example A)

13 This line plot shows how many servings of fruit each of Mr. Langer's students had yesterday.



Key

× represents 1 student

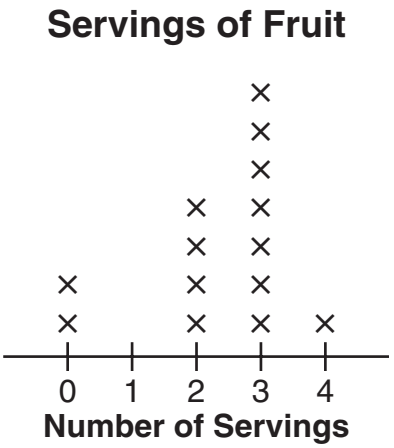
How many students had exactly one serving of fruit yesterday?

14 students had fruit yesterday.

Student's answer is incorrect.

Score Point 0
(Example B)

13 This line plot shows how many servings of fruit each of Mr. Langer's students had yesterday.



Key
× represents 1 student

How many students had exactly one serving of fruit yesterday?

In Mr.Langer's class number 4 only served 1 fruit.

Student's answer is incorrect.

N&O 2.3 **Demonstrates conceptual understanding of mathematical operations involving** addition and subtraction of whole numbers by solving problems involving joining actions, separating actions, part-part whole relationships, and comparison situations; and addition of multiple one-digit whole numbers.

14 Donny is solving this problem.

> Nine birds are in a tree. Four of these birds are blue. The other birds are red. How many birds are red?

Donny wrote this number sentence.

$$9 + 4 = \square$$

a. Explain how Donny's number sentence will or will not help him solve this problem.

b. How many birds are red?

Scoring Guide

Score	Description
2	2 points
1	1 point
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Training Notes:

Part a:	1 point	Explains that adding the number of blue birds to the total number of birds will result in an answer greater than the total already given, which cannot possibly be the number of red birds.
Part b:	1 point	Correctly solves the problem to show that there are 5 (red birds).

SCORE POINT 2
(EXAMPLE A)

14 Donny is solving this problem.

> Nine birds are in a tree. Four of these birds are blue. The other birds are red. How many birds are red?

Donny wrote this number sentence.

$$9 + 4 = \boxed{13}$$

a. Explain how Donny's number sentence will or will not help him solve this problem.

There are only nine birds, so 13 birds couldn't be red.

a) Student has a correct explanation. (1 point)

5 4+5=9

b) Student's answer is correct (showing work is not required). (1 point)

Score Point 2
(Example B)

14 Donny is solving this problem.

> Nine birds are in a tree. Four of these birds are blue. The other birds are red. How many birds are red?

Donny wrote this number sentence.

$$9 + 4 = \boxed{13}$$

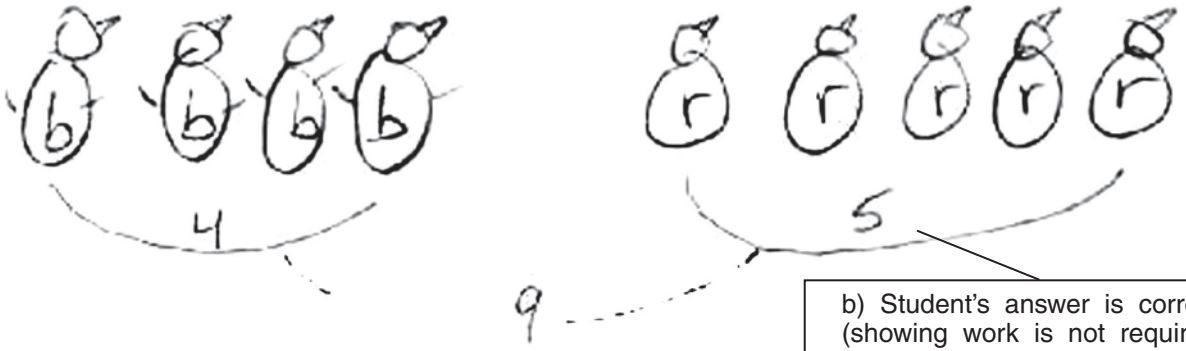
a. Explain how Donny's number sentence will or will not help him solve this problem.

will not help him because he has a + sine not a − sine

a) Student has a correct explanation. (1 point)

b. How many birds are red?

4+5=9



b) Student's answer is correct (showing work is not required). (1 point)

SCORE POINT 1
(EXAMPLE A)

14 Donny is solving this problem.

> Nine birds are in a tree. Four of these birds are blue. The other birds are red. How many birds are red?

Donny wrote this number sentence.

$$9 + 4 = \boxed{5}$$

a. Explain how Donny's number sentence will or will not help him solve this problem.

by counting the birds

b. How many birds are red?

5

a) Student's explanation is incorrect. (0 points)

b) Student's answer is correct. (1 point)

SCORE POINT 1
(EXAMPLE B)

14 Donny is solving this problem.

> Nine birds are in a tree. Four of these birds are blue. The other birds are red. How many birds are red?

Donny wrote this number sentence.

$$9 + 4 = \square$$

a. Explain how Donny's number sentence will or will not help him solve this problem.

a) Student does not explain how the number sentence will or will not help solve the problem. (0 points)

b. How many birds are red?

b) Student's answer is correct. (1 point)

SCORE POINT 0
(EXAMPLE A)

14 Donny is solving this problem.

> Nine birds are in a tree. Four of these birds are blue. The other birds are red. How many birds are red?

Donny wrote this number sentence.

$$9 + 4 = \boxed{13}$$

a. Explain how Donny's number sentence will or will not help him solve this problem.

It will help him solv the problem because you only have to add 9 more.

a) Student's explanation is incorrect. (0 points)

b. How many birds are red?

9

b) Student's answer is incorrect. (0 points)

SCORE POINT 0
(EXAMPLE B)

14 Donny is solving this problem.

> Nine birds are in a tree. Four of these birds are blue. The other birds are red. How many birds are red?

Donny wrote this number sentence.

$$9 + 4 = \boxed{14}$$

a. Explain how Donny's number sentence will or will not help him solve this problem.

he might figer it out

a) Student's explanation is incorrect. (0 points)

b. How many birds are red?

14

b) Student's answer is incorrect. (0 points)

N&O 2.5 **Demonstrates understanding of monetary value** by adding coins together to a value no greater than $1.99 and representing the result in dollar notation; making change from $1.00 or less, or recognizing equivalent coin representations of the same value (values up to $1.99).

15 Andrew had these coins.

He bought milk for 25¢ and cookies for 25¢.

How much money does Andrew have now? Use numbers, words, or pictures to show your work or explain how you know.

Scoring Guide

Score	Description
2	Student has correct answer with an appropriate strategy or explanation.
1	Student has correct answer, but strategy or explanation is missing. OR Student has an appropriate strategy or explanation but makes a minor computational error.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Sample Responses:

25¢ or $0.25

Accept any appropriate strategy showing $0.75 – $0.50 = $0.25. Students can draw pictures, make marks, use numbers, or use words to explain how they found their answer.

Note: One acceptable strategy is to cross out coins equal to 50¢.

SCORE POINT 2
(EXAMPLE A)

15 Andrew had these coins.

He bought milk for 25¢ and cookies for 25¢.

How much money does Andrew have now? Use numbers, words, or pictures to show your work or explain how you know.

Student's answer is correct with appropriate strategy shown. (2 points)

SCORE POINT 2
(EXAMPLE B)

15 Andrew had these coins.

He bought milk for 25¢ and cookies for 25¢.

How much money does Andrew have now? Use numbers, words, or pictures to show your work or explain how you know.

75 − 50 = 25

Student's answer is correct with appropriate strategy shown. (2 points)

SCORE POINT 1
(EXAMPLE A)

15 Andrew had these coins.

He bought milk for 25¢ and cookies for 25¢.

How much money does Andrew have now? Use numbers, words, or pictures to show your work or explain how you know.

$$\begin{array}{r} 75 \\ -25 \\ -25 \\ \hline 30 \end{array}$$

Andrew has 30 cents left

Student has an appropriate strategy but makes a computational error. (1 point)

SCORE POINT 1
(EXAMPLE B)

15 Andrew had these coins.

He bought milk for 25¢ and cookies for 25¢.

How much money does Andrew have now? Use numbers, words, or pictures to show your work or explain how you know.

Andrew has 25¢ left

Student's answer is correct without work or explanation. (1 point)

SCORE POINT 0
(EXAMPLE A)

15 Andrew had these coins.

He bought milk for 25¢ and cookies for 25¢.

How much money does Andrew have now? Use numbers, words, or pictures to show your work or explain how you know.

35¢

Student's answer is incorrect without work or explanation. (0 points)

SCORE POINT 0
(EXAMPLE B)

15 Andrew had these coins.

He bought milk for 25¢ and cookies for 25¢.

How much money does Andrew have now? Use numbers, words, or pictures to show your work or explain how you know.

25 coins left.

Student's answer is incorrect (refers to the number of coins instead of the value) without work or explanation. (0 points)

F&A 2.4 **Demonstrates conceptual understanding of equality** by finding the value that will make an open sentence true (e.g., $2 + \square = 7$). (limited to one operation and limited to use addition or subtraction)

16 a. Write a number in the box to make this number sentence true.

$$3 + 6 = \square + 5$$

b. Write the numbers 8, 6, 2, and 4 in the boxes to make this number sentence true. Use each number only once.

$$\square + \square = \square + \square$$

Scoring Guide

Score	Description
2	Student has correct answer, **4**, in part a and uses given numbers to write a true number sentence in part b.
1	Student has correct answer in part a. OR Student uses given numbers to write a true number sentence in part b.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.
Blank	No response

Sample Responses:

Part b: 4 + 6 = 2 + 8

4 + 6 = 8 + 2

6 + 4 = 2 + 8

6 + 4 = 8 + 2

2 + 8 = 4 + 6

2 + 8 = 6 + 4

8 + 2 = 4 + 6

8 + 2 = 6 + 4

SCORE POINT 2
(EXAMPLE A)

16 a. Write a number in the box to make this number sentence true.

$$3 + 6 = \boxed{4} + 5$$

a) Student's answer is correct. (1 point)

b. Write the numbers 8, 6, 2, and 4 in the boxes to make this number sentence true. Use each number only once.

$$\boxed{8} + \boxed{2} = \boxed{4} + \boxed{6}$$

b) Student has a correct answer. (1 point)

SCORE POINT 2
(EXAMPLE B)

16 a. Write a number in the box to make this number sentence true.

$$3 + 6 = \boxed{} + 5$$

4 makes this number sentence true.

b. Write the numbers 8, 6, 2, and 4 in the boxes to make this number sentence true. Use each number only once.

$$\boxed{6} + \boxed{4} = \boxed{8} + \boxed{2}$$

b) Student has a correct answer. (1 point)

a) Although placed outside the box, student's answer is correct. (1 point)

SCORE POINT 1
(EXAMPLE A)

16 a. Write a number in the box to make this number sentence true.

$$3 + 6 = \boxed{} + 5$$

a) No response
(0 points)

b. Write the numbers 8, 6, 2, and 4 in the boxes to make this number sentence true. Use each number only once.

$$\boxed{2} + \boxed{8} = \boxed{4} + \boxed{6}$$

b) Student has a correct answer. (1 point)

SCORE POINT 1
(EXAMPLE B)

16 a. Write a number in the box to make this number sentence true.

$$3 + 6 = \boxed{4} + 5$$

a) Student's answer is correct. (1 point)

b. Write the numbers 8, 6, 2, and 4 in the boxes to make this number sentence true. Use each number only once.

$$\boxed{8} + \boxed{6} = \boxed{2} + \boxed{4}$$

b) Student's answer is incorrect. (0 points)

SCORE POINT 0
(EXAMPLE A)

16 a. Write a number in the box to make this number sentence true.

$$3 + 6 = \boxed{} + 5$$

a) No response
(0 points)

b. Write the numbers 8, 6, 2, and 4 in the boxes to make this number sentence true. Use each number only once.

$$\boxed{4} + \boxed{2} = \boxed{6} + \boxed{8}$$

b) Student's answer is incorrect.
(0 points)

SCORE POINT 0
(EXAMPLE B)

16 a. Write a number in the box to make this number sentence true.

$3 + 6 = \boxed{9} + 5$

a) Student's answer is incorrect. (0 points)

b. Write the numbers 8, 6, 2, and 4 in the boxes to make this number sentence true. Use each number only once.

$\boxed{2} + \boxed{4} = \boxed{6} + \boxed{8}$

b) Student's answer is incorrect. (0 points)