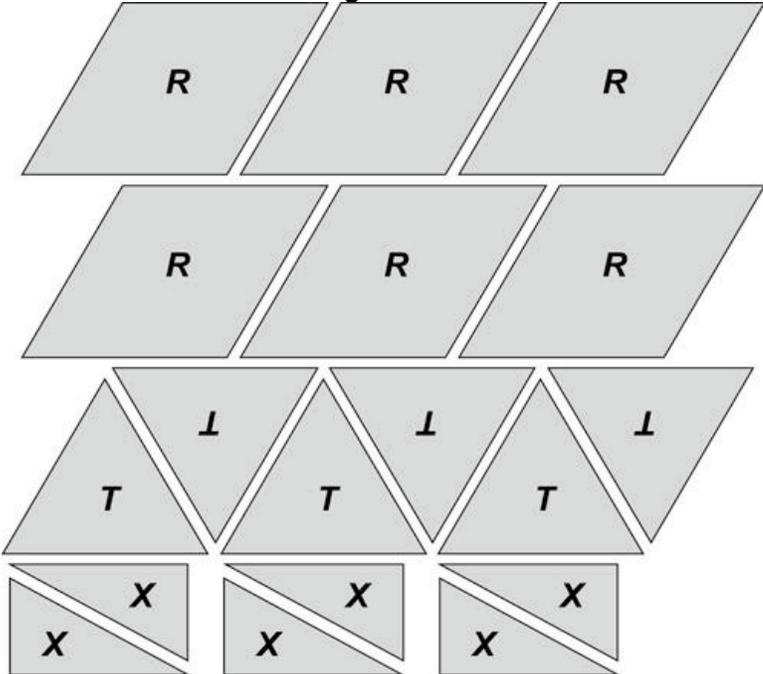


National Assessment of Educational Progress (NAEP)

How did Nebraska Grade 4 students score on the 2009 NAEP Mathematics assessment?

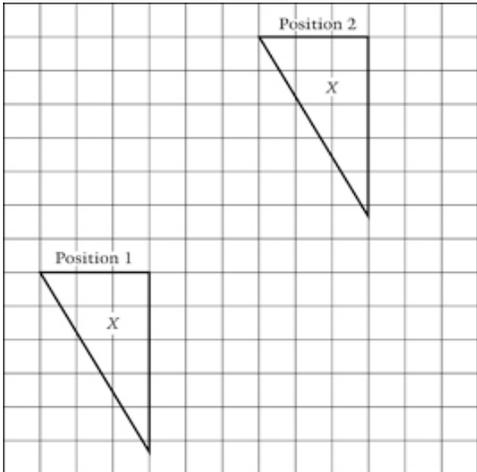
Below are released items from the 2009 NAEP Mathematics assessment.

The Grade 4 students were given additional materials to use during the assessment [1]



Question 1 refers to additional materials [1]

The following question refers to pieces R, T and X.
You will need the piece labeled X to answer this question.



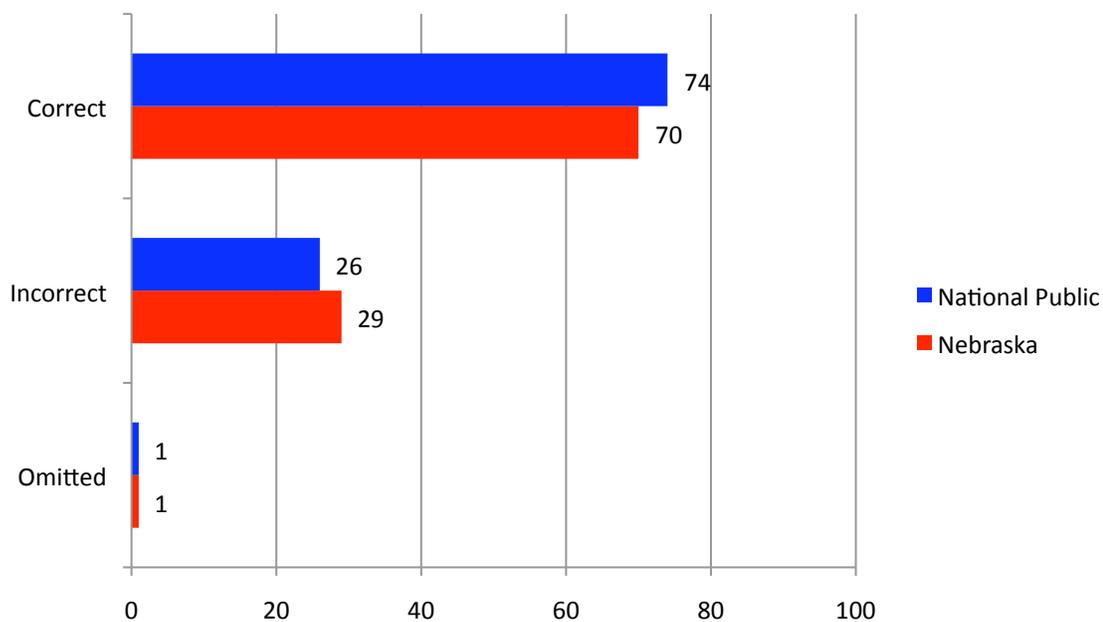
1. Which word best describes how to move the piece labeled *X* from position 1 to position 2 ?

- A. Flip
- B. Fold
- C. Slide
- D. Turn

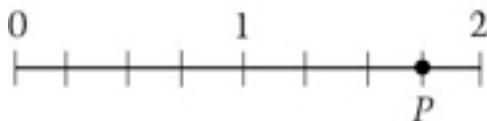
Key

C

Percentage of students in each response category in 2009 NAEP Mathematics at grade 4:
Recognize type of transformation from picture



NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.



2. On the number line, what number does P represent?

A. $\frac{2}{3}$

B. $\frac{3}{4}$

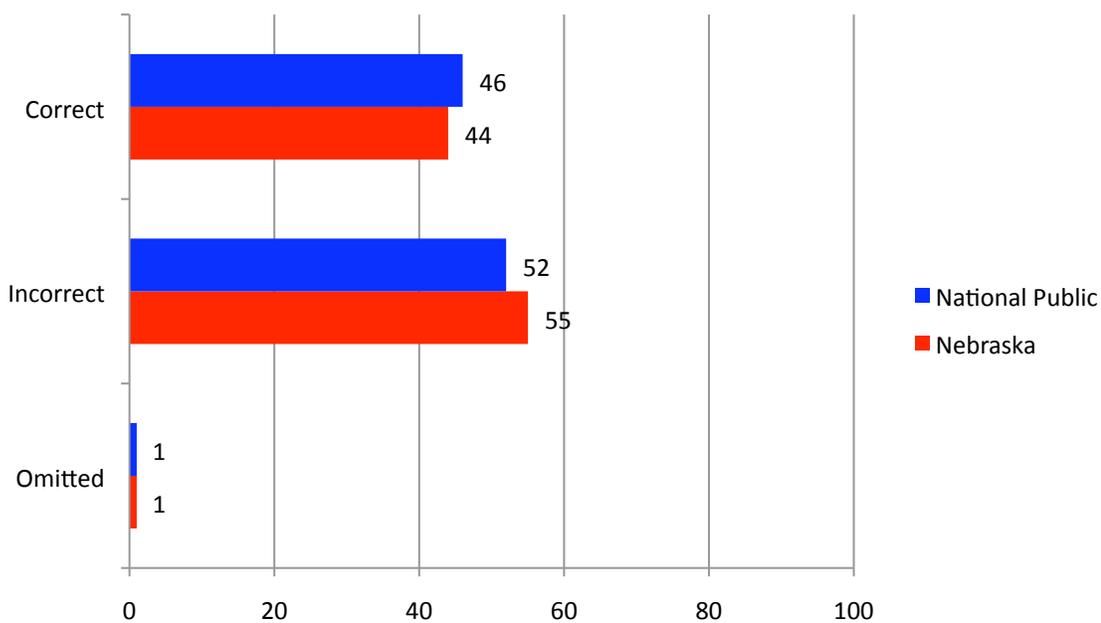
C. $1\frac{2}{3}$

D. $1\frac{3}{4}$

Key

D

Percentage of students in each response category in 2009 NAEP Mathematics at grade 4:
Identify the value a point on a number line



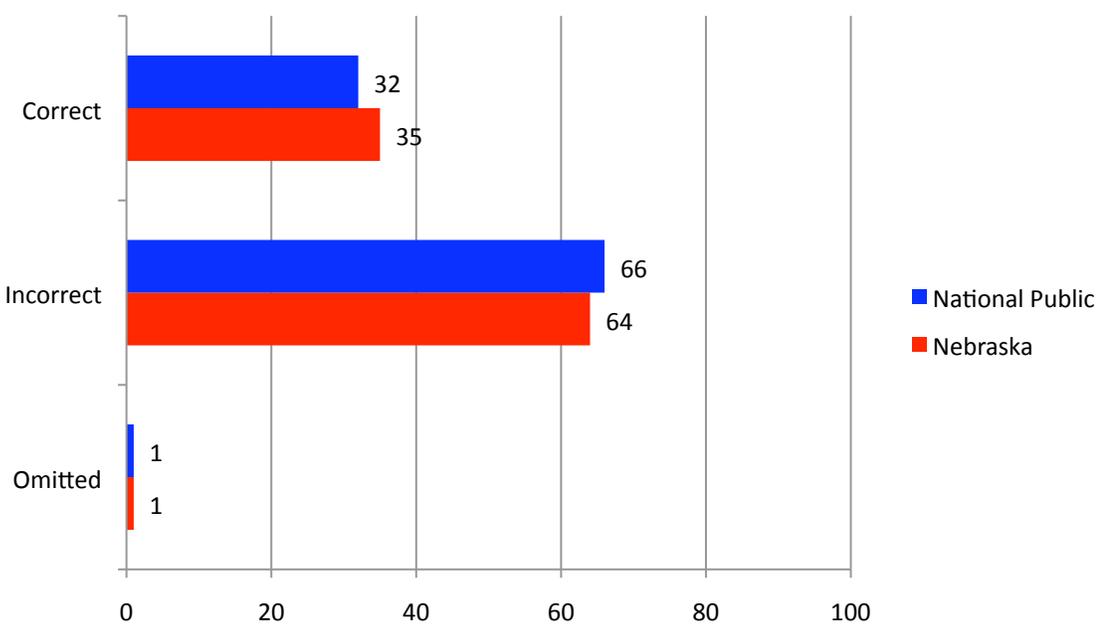
NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

3. Emily needs to measure the length of a table. She has a dollar bill that is about 6 inches long. It fits, end to end, 10 times along the length of the table. Which is the best estimate for the length of the table?
- A. 5 feet
 - B. 6 feet
 - C. 10 feet
 - D. 12 feet

Key

A

Percentage of students in each response category in 2009 NAEP Mathematics at grade 4:
Estimate length of object by indirect measurement



NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

4. Susie said, "I have 83¢ but fewer than 10 coins." Show in the chart how many of each coin she could have to total 83¢.

Total Number of Coins	 25¢	 10¢	 5¢	 1¢

Scoring Guide - Sample Correct Responses:

Total Number of coins	25¢	10¢	5¢	1¢
7	3	0	1	3
8	2	3	0	3
9	2	2	2	3

Score & Description

Correct

Gives one or more correct solutions.

Partial

Combination of coins equals \$.83 but total number of coins is incorrect (has 10 or more)

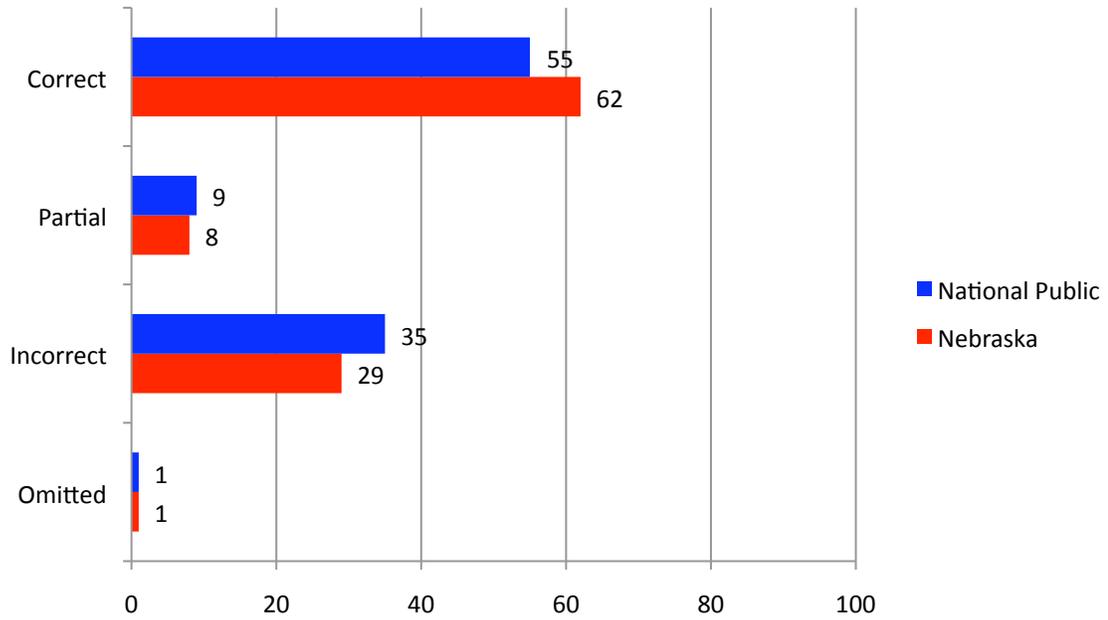
OR

Has at least one correct solution but one or more incorrect solutions (half or more of the solutions are incorrect).

Incorrect

Incorrect response

Percentage of students in each response category in 2009 NAEP Mathematics at grade 4:
Determine one possible way to have a sum of money.



NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Question 5 refers to additional materials [1]

The following question refers to pieces *R*, *T* and *X*.
You will need two pieces labeled *X* to answer this question.

5. Use the pieces to make a shape that has these properties.

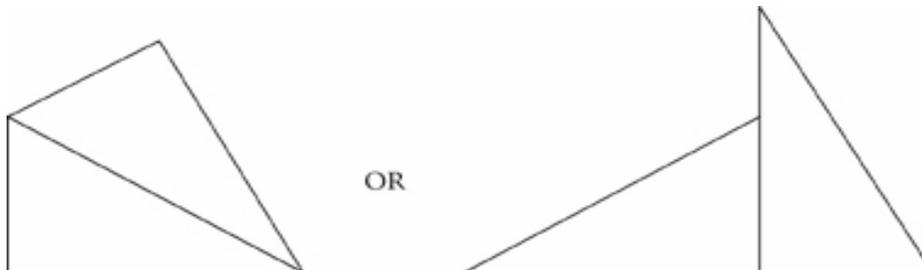
- It has four sides.
- No pieces overlap.
- No two sides are parallel.

In the space below, trace the shape.

Draw the line to show where the two pieces meet.

Scoring Guide

Sample Correct Responses:



Score & Description

Correct

Correct response

Partial

A four-sided figure with parallel sides with meeting lines drawn.

OR

A correct shape but meeting line is incorrect.

OR

A 3-sided figure or a figure with more than four sides, and the sides are not parallel with meeting lines drawn.

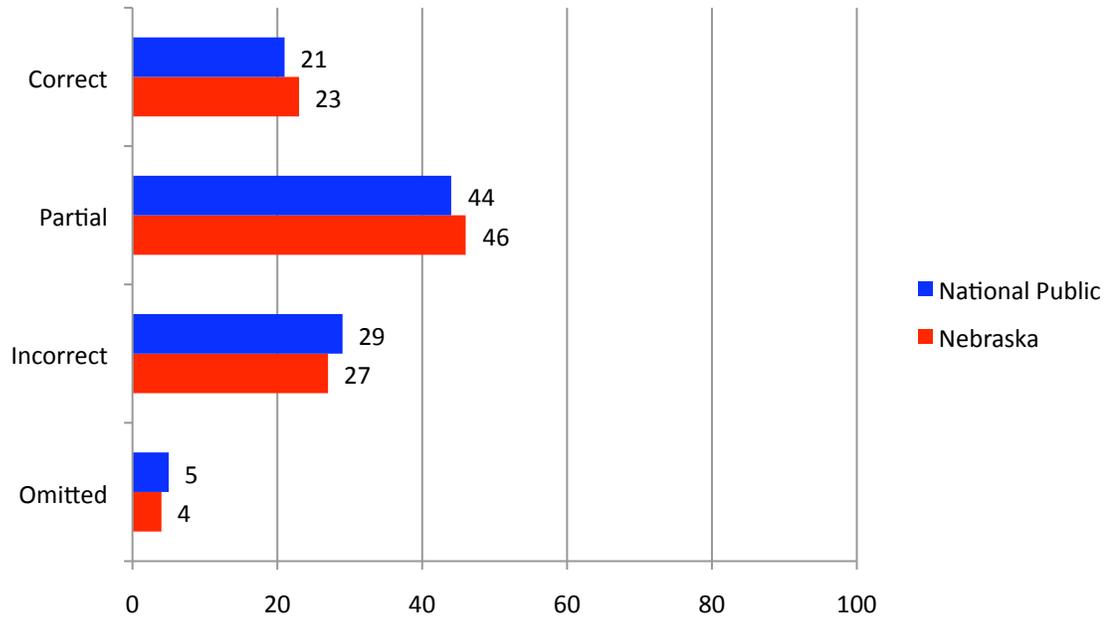
OR

Either of the correct shapes is drawn without the line where the pieces meet.

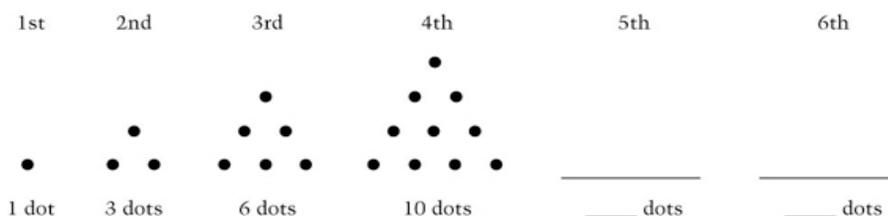
Incorrect

Incorrect response

Percentage of students in each response category in 2009 NAEP Mathematics at grade 4:
Use given pieces to make shape with certain properties



NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.



6. A pattern of dots is shown above. How many dots would be in the 6th picture?

Answer: _____

Explain how you found your answer.

Scoring Guide

Sample Correct Responses:

21 dots. The 5th picture would have 15 dots, 5 more than the 4th. The 6th picture would have 21 dots, 6 more than the 5th. An acceptable explanation may be given by drawings, words, and/or numbers.

Pictures drawn by the students need to follow the pattern of dots shown in the first four pictures in order to be considered correctly drawn. Just having the correct number of dots (but not following the pattern) is not sufficient to earn full credit.

Score & Description

Correct

Correct response: 21 dots with a correct explanation.

There are two types of correct explanations.

- First type: The geometric explanation. For this, the student has presented correct drawings for the 5th and 6th pictures, the numbers 15 and 21, and a correct supporting explanation.
- Second type: The numerical explanation. For this, the student has not presented any drawings for the 5th and 6th pictures, but does have the correct numbers (15 and 21) with a correct supporting explanation like "It goes $+2 + 3 + 4 + 5 + 6$."

Partial 1

Partially correct response

Does not get 21 but has a correct explanation.

Examples of correct explanations include the following:

- Because the bottom keeps changing to the next number
- It goes $+ 2 + 3 + 4 + 5 + 6$.

Partial 2

Partially correct response

21 dots with no explanation, a partially correct explanation, or a partially complete explanation.

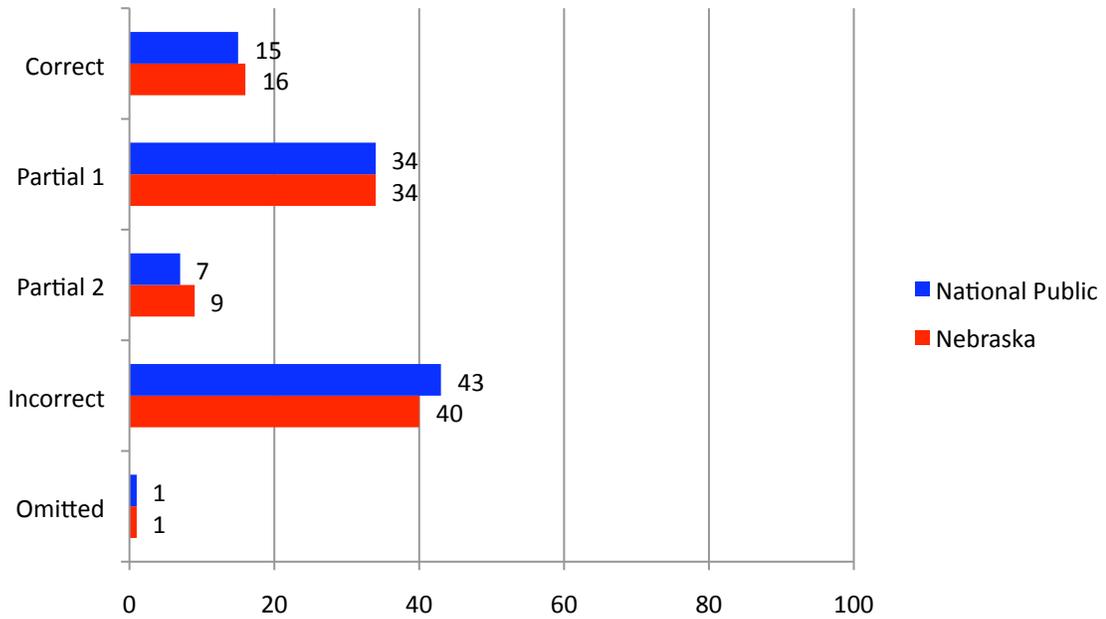
Examples of partially correct or partially complete explanations include the following:

- You add one more dot to the bottom.
- You add 1 each time.
- It increased by 1 each time.
- I counted the numbers in order.

Incorrect

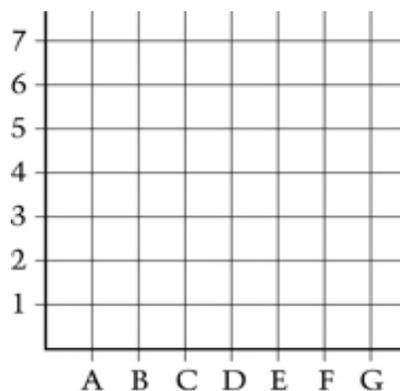
Incorrect response

Percentage of students in each response category in 2009 NAEP Mathematics at grade 4:
Extend a pattern and explain answer



NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

7. On the grid below, plot the points that have coordinates $(B, 1)$, $(B, 3)$, and $(D, 5)$.



Plot 3 more points on the grid so that when you connect all 6 points you will make a rectangle.

List the coordinates for the 3 new points. _____

Connect the 6 points to show your rectangle.

Scoring Guide

Sample Correct Responses:

- Correctly plots the points $(B, 1)$, $(B, 3)$, and $(D, 5)$
- Correctly plots 3 other points that form a rectangle and gives their coordinates
- Connects the dots to form a rectangle

Score & Description

Extended

Correct response

Satisfactory

Plots 3 given points and plots 3 new points to form a rectangle, gives correct coordinates of new points, but does not draw the rectangle.

OR

Draws rectangle that contains the 3 given points and gives coordinates of 3 other points on the rectangle but one point is not clearly plotted.

OR

Plots 3 given points, plots 3 new points, draws rectangle, gives coordinates for 3 new points but one of the coordinates given does not match the point plotted. (e.g., gives $(D, 2)$ instead of $(D, 3)$).

Partial

Plots 3 given points and plots 2 or 3 new points that clearly form a rectangle; gives correct coordinates of 1 or 2 of the new points; may or may not draw the rectangle correctly.

OR

Plots 3 given points correctly and gives coordinates of 3 new points that clearly form a rectangle (but does not plot the new points).

OR

Plots 3 given points and 3 new points and plots/identifies additional point(s) on rectangle.

Minimal

Plots 3 points clearly (either given points or new points or a combination).

OR

Plots 2 of the given points correctly and draws a rectangle using those 2 points. Points must be clearly marked.

OR

Lists coordinates for 3 new points that would clearly form a rectangle (e.g., (D, 1), (D, 3), (B, 5)) when connected; points may not be plotted.

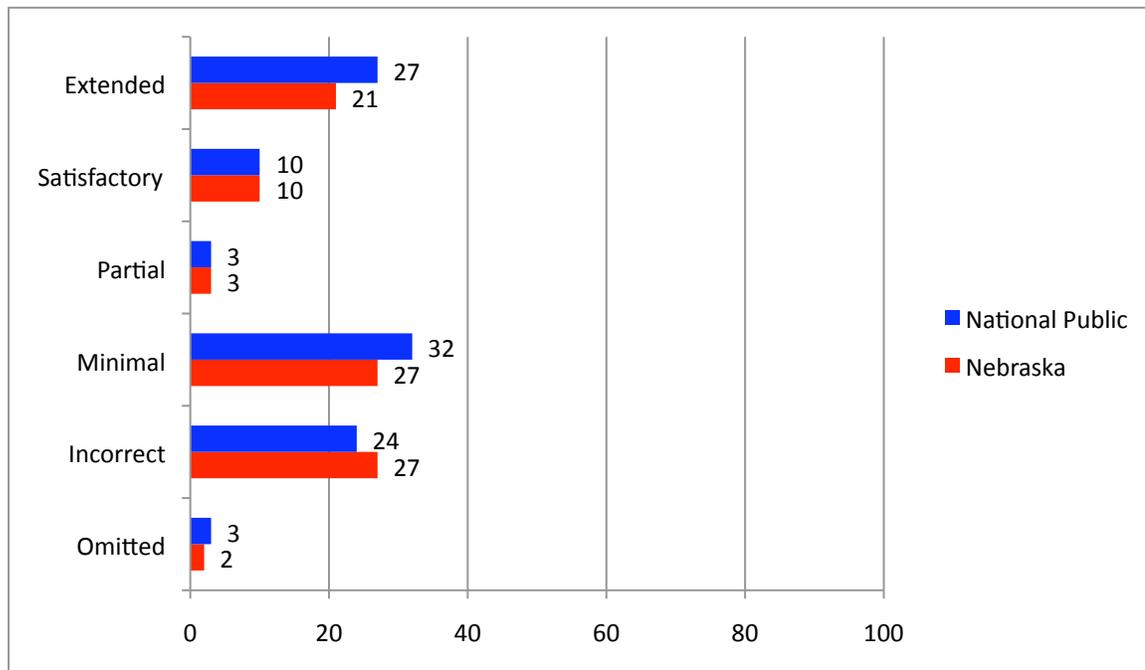
OR

Draws a rectangle that includes the 3 given points, but points may not be clearly plotted.

Incorrect

Incorrect response

Percentage of students in each response category in 2009 NAEP Mathematics at grade 4:
Plot points on grid to satisfy given conditions



NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding. SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Question 8 refers to additional materials [1]

The following question refers to pieces R , T and X .

You will need the pieces labeled T and X to answer this question.

8. Kylena made a design from the pieces and called it a "shy dog." Each dog design used 1 piece labeled T and 2 pieces labeled X . It looked like this.

How many of each of the pieces would she need to make 26 shy dog designs?

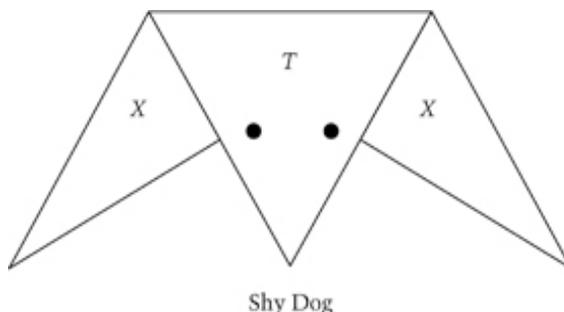
Piece T _____

Piece X _____

If Kylena had only 11 pieces labeled T and only 15 pieces labeled X , how many shy dog designs could she make?

Answer: _____

Use drawings, words, or numbers to explain how you found the number of shy dog designs she could make.



Scoring Guide

Sample Correct Responses:

Part A:

Piece T - 26

Piece X - 52

Part B:

7 (accept 7R1)

Explanation:

Kylena could make 7 shy dogs with the pieces she has. She needs 2 X 's for each dog.

$15 \div 2 = 7.5$ so there are only enough X 's for 7.

There are enough T 's for more than 7.

Score & Description

Extended

Correct response

Satisfactory

Both parts correct, but explanation is incomplete.

OR

Has 52 for piece X but piece T is incorrect and has 7 for part B and explanation is completely correct.

OR

Part A completely correct and explanation completely correct but does not answer 7 for part B.

Partial

Part A is completely correct and there is some correct work in the explanation, but does not have 7 on answer line.

OR

Shows three answers 26, 52, and 7 with no explanation.

OR

Part A is incorrect and part B is correct and explanation is completely correct.

Minimal

Has part A correct

OR

Answers 7 for part B with no explanation, incorrect explanation or incomplete explanation.

OR

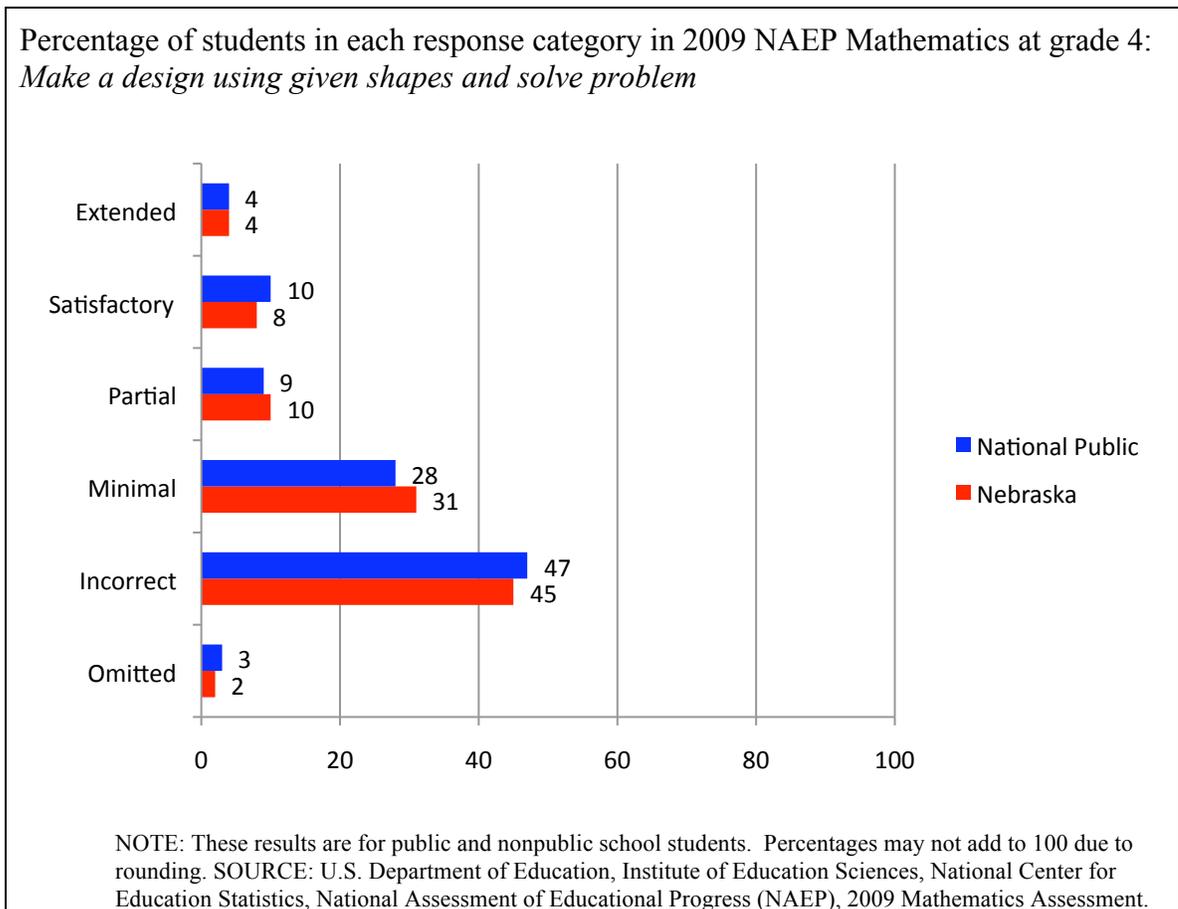
Answers 52 for piece X (and number for piece T is incorrect or missing).

OR

Explanation completely correct with no other correct work.

Incorrect

Incorrect response



If you would like more information about the NAEP released items or the NAEP Question Tool contact the Nebraska NAEP State Coordinator, Dr. Ted A. Larson, at (402)-471-2959 or at ted.larson@nebraska.gov.