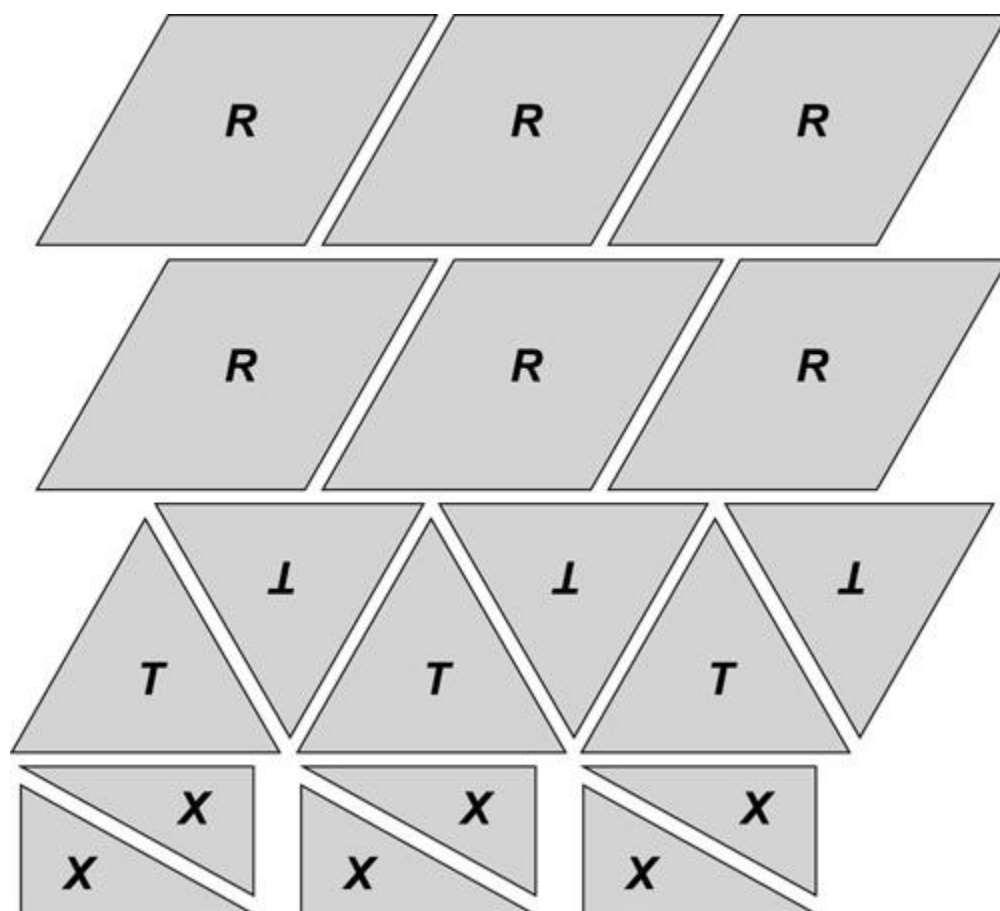


additional materials [1]



Question 1 refers to additional materials [1]

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

You will need one piece labeled *X*, one piece labeled *T*, and one piece labeled *R* to answer this question.

1. Which of the pieces has an angle greater than a right angle?

1. Only *X*
2. Only *R*
3. Only *T*
4. Both *R* and *T*

Key

B

NAEP national performance results in Mathematics at grade 4: 2009

Identify given piece with angle greater than 90 degrees

Correct:43%. Incorrect:56%. Omitted:2%.

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.

$$\square - 8 = 21$$

2. What number should be put in the box to make the number sentence above true?

Answer: _____

Scoring Guide

Sample Correct Responses:

29

OR

$29 - 8 = 21$

OR

29 in the box and response area blank.

Score & Description

Correct

Correct response

Incorrect

Incorrect response

Correct - Student Response

What number should be put in the box to make the number sentence above true?

Answer: _____

29

29

What number should be put in the box to make the number sentence above true?

Answer: _____

29

Scorer Comments:

These responses correctly listed 29 as the number that should be put in the box.
Incorrect - Student Response

What number should be put in the box to make the number sentence above true?

Answer: _____

13

$$\frac{1}{2} \parallel$$

$$\frac{-8}{13}$$

13

13

$$\frac{1}{2} \parallel$$

$$\frac{-8}{13}$$

13

What number should be put in the box to make the number sentence above true?

Answer: _____

13

$$\frac{1}{2} \parallel$$

$$\frac{-8}{13}$$

13

Scorer Comments:

These responses provided incorrect answers that reflect common errors in solving the equation.

NAEP national performance results in Mathematics at grade 4: 2009

Determine value of unknown in a number sentence

Incorrect:30%. Correct:69%. Omitted:1%. Off task:Rounds to zero.

Rounds to zero.

NOTE: These results are for public and nonpublic school students. Percentages may not add to 100 due to rounding.

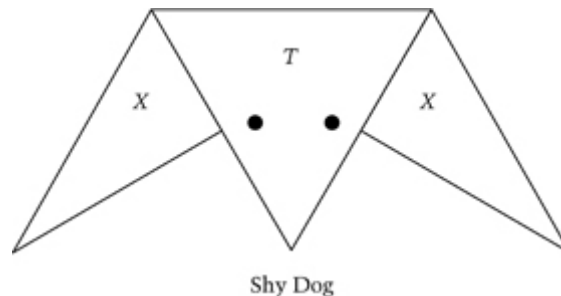
SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2009 Mathematics Assessment.

Question 3 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.

3. 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

Extended - Student Response

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.

Piece T 26
 Piece X 52

Answer: 7

the most X peices you could use to make a dog is 14, because if you use all of them one dog will only have one ear. I know you can use 7 T peices, because $\frac{1}{2}$ of 14 is 7.

Piece T 26
 Piece X 52

Answer: 7

the most X peices you could use to make a dog is 14, because if you use all of them one dog will only have one ear. I know you can use 7 T peices, because $\frac{1}{2}$ of 14 is 7.

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.

Piece T 26
 Piece X 52

Answer: 7

the most X peices you could
 use to make a dog is 14, because if you
 use all of them one dog will only have one ear.
 I know you can use 7 T peices, because $\frac{1}{2}$ of
 14 is 7.

Scorer Comments:

These responses had the correct number of Piece *T* and the correct number of Piece *X*. They also had the correct answer of 7 for the number of shy dog designs that could be made, and provided a complete explanation.

Satisfactory - Student Response

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.

Piece T 26
 Piece X 52

$$\begin{array}{r} 26 \\ \times 2 \\ \hline 52 \end{array}$$

Answer: 7

$$\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$$

Piece T	26	$\begin{array}{r} 26 \\ \times 2 \\ \hline 52 \end{array}$
Piece X	52	

Answer: 7

$$\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$$

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.

Piece T	26	$\begin{array}{r} 26 \\ \times 2 \\ \hline 52 \end{array}$
Piece X	52	

Answer: 7

$$\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$$

Scorer Comments:

These responses had the correct number of pieces for both *T* and *X* and the correct number of shy dog designs that could be made, but they had incomplete explanations.

Partial - Student Response

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.

Piece T 210
 Piece X 52

Answer: 11

$$\begin{array}{r} 7R1 \\ 2 \overline{)15} \\ \underline{14} \\ 01 \text{ (R)} \end{array}$$

Kylena
 can make 11 shy
 dogs and 1 labeled X
 piece will be left
 over

Piece T 210
 Piece X 52

Answer: 11

$$\begin{array}{r} 7R1 \\ 2 \overline{)15} \\ \underline{14} \\ 01 \text{ (R)} \end{array}$$

Kylena
 can make 11 shy
 dogs and 1 labeled X
 piece will be left
 over

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.

Piece T 26
 Piece X 52

Answer: 11

$$\begin{array}{r} 7R1 \\ 2 \overline{)15} \\ \underline{14} \\ 01 \text{ (R1)} \end{array}$$

Kylena
 can make 11 shy
 dogs and 11 labeled X
 piece will be left
 over.

Scorer Comments:

These responses had the correct number of pieces for both T and X and some correct work in the explanation, but they did not have the correct number of shy dog designs that could be made.

Minimal - Student Response

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.

Piece *T* 26
 Piece *X* 52

Answer: 15

I multiplied 11x15 so I got 15

Piece *T* 26
 Piece *X* 52

Answer: 15

I multiplied 11x15 so I got 15

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.

Piece *T* 26
 Piece *X* 52

Answer: 15

I multiplied 11x15 so I got 15

Scorer Comments:

These responses had the correct number of pieces for both *T* and *X* only.
 Incorrect - Student Response

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 Kylene 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.

Piece T

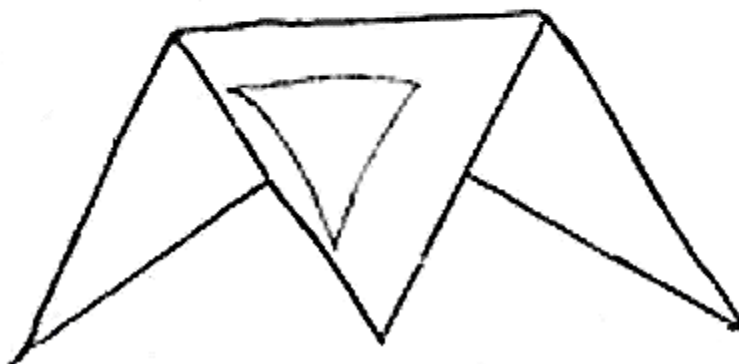
1

Piece X

2

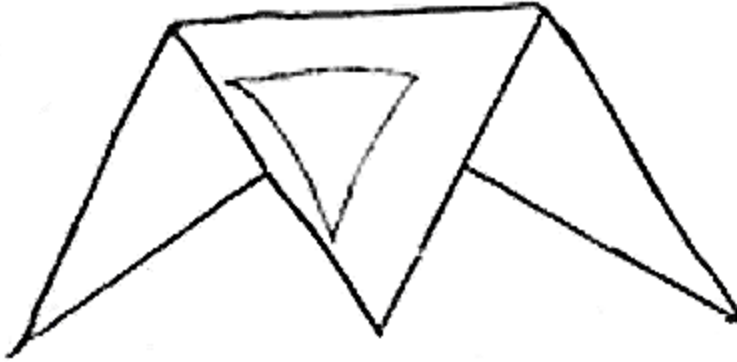
Answer:

26



Piece *T* 1
 Piece *X* 2

Answer: 26



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* _____

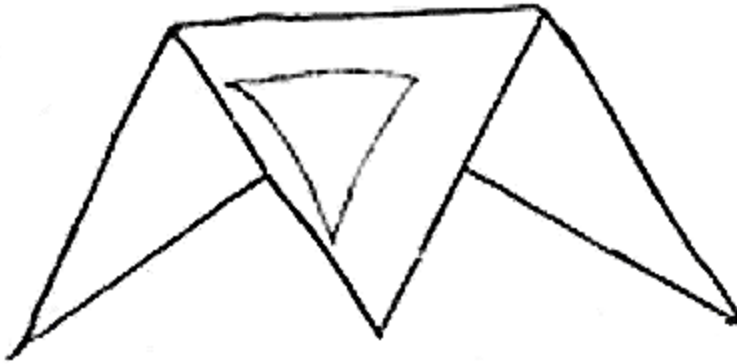
If Kylena had only 11 pieces labeled *T* and only 15 pieces labeled *X*, how many shy dog designs could she make?

Answer: _____

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

Piece T 1
 Piece X 2

Answer: 26



Scorer Comments:

These responses had no correct answers or explanations.

NAEP national performance results in Mathematics at grade 4: 2009

Make a design using given shapes and solve problem

Incorrect:46%. Minimal:28%. Partial:9%. Satisfactory:10%. Extended:4%. Omitted:3%. Off task:Rounds to zero.

Rounds to zero.

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. Write a three-digit number using the digits 2, 4, and 6 so that the digit 4 means four tens and the digit 6 means six hundreds.

Answer: _____

Scoring Guide

Sample Correct Responses:

642

Score & Description

Correct

Correct response

Incorrect

Incorrect response

Correct - Student Response

Write a three-digit number using the digits 2, 4, and 6 so that the digit 4 means four tens and the digit 6 means six hundreds.

Answer: _____

642

642

Write a three-digit number using the digits 2, 4, and 6 so that the digit 4 means four tens and the digit 6 means six hundreds.

Answer: _____

642

Scorer Comments:

These responses had the correct answer of 642.

Incorrect - Student Response

Write a three-digit number using the digits 2, 4, and 6 so that the digit 4 means four tens and the digit 6 means six hundreds.

Answer: _____

1,242

1,242

Write a three-digit number using the digits 2, 4, and 6 so that the digit 4 means four tens and the digit 6 means six hundreds.

Answer: _____

1,242

Scorer Comments:

These responses reflected common incorrect answers.

NAEP national performance results in Mathematics at grade 4: 2009

Use place value to write a number

Incorrect:28%. Correct:69%. Omitted:2%. Off task:Rounds to zero.

Rounds to zero.

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.

5. A loaded trailer truck weighs 26,643 kilograms. When the trailer truck is empty, it weighs 10,547 kilograms. About how much does the load weigh?

1. 14,000 kilograms
2. 16,000 kilograms
3. 18,000 kilograms
4. 36,000 kilograms

Key

B

NAEP national performance results in Mathematics at grade 4: 2009

Use estimation to find a difference

Correct:53%. Incorrect:46%. Omitted:2%.

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. Marty has 6 red pencils, 4 green pencils, and 5 blue pencils. If he picks out one pencil without looking, what is the probability that the pencil he picks will be green?

1. 1 out of 3
2. 1 out of 4
3. 1 out of 15
4. 4 out of 15

Key

D

NAEP national performance results in Mathematics at grade 4: 2009

Determine the probability of a particular outcome

Correct:38%. Incorrect:60%. Omitted:2%.

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.