



pennsylvania
DEPARTMENT OF EDUCATION

The Pennsylvania System of School Assessment

Mathematics Preliminary Item and Scoring Sampler



**2013–2014
Grade 3**

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INTRODUCTION

General Introduction

The Pennsylvania Department of Education provides districts and schools with tools to assist in delivering focused instructional programs aligned with the Pennsylvania Core Standards Assessment Anchors. These tools include Academic Standards, Assessment Anchor documents, assessment handbooks, and content-based item and scoring samplers. This Item and Scoring Sampler is a useful tool for Pennsylvania educators in preparing local instructional programs. It can also be useful in preparing students for the statewide assessment.

What Is Included

This sampler contains test questions (items) that have been written to align to the Assessment Anchors that are based on the Pennsylvania Core Standards (PCS). The test questions provide an idea of the types of items that will appear on an operational, PCS-based PSSA. Each sample test question has been through a rigorous review process to ensure alignment with the Assessment Anchors.

Purpose and Uses

The items in this sampler may be used as examples for creating assessment items at the classroom level, and they may also be copied and used as part of a local instructional program.¹ Classroom teachers may find it beneficial to have students respond to the open-ended items in this sampler. Educators can then use the sampler as a guide to score the responses either independently or together with colleagues within a school or district.

Item Format and Scoring Guidelines

The multiple-choice (MC) items have four answer choices. Each correct response to an MC item is worth one point.

Each open-ended (OE) item is designed to take approximately ten to fifteen minutes to complete. During the administration of the PSSA students are given additional time as necessary to complete the test items. Each OE item in mathematics is scored using an item-specific scoring guideline based on a 0–4 point scale. In this sampler, every item-specific scoring guideline is combined with examples of student responses that represent each score point to form a practical, item-specific scoring guide.

The sampler also includes the *General Description of Scoring Guidelines for Mathematics Open-Ended Questions* used to develop the item-specific guidelines. The general description of scoring guidelines can be used if any additional item-specific scoring guidelines are created for use within local instructional programs.¹

Item Alignment

All PSSA items are aligned to statements and specifications included in the *Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards*. The mathematics content, process skills, directives, and action statements included in the PSSA mathematics questions will align with the Assessment Anchor Content Standards. The Eligible Content statements represent the limits of the content of the mathematics questions.

¹ The permission to copy and/or use these materials does not extend to commercial purposes.

Testing Time and Mode of Testing Delivery for the PCS-Based PSSA

The PSSA is delivered in traditional paper-and-pencil format as well as in an online format. The estimated time to respond to a test question is the same for both methods of test delivery. During an official testing administration, students are given additional time as necessary to complete the test questions. The following table shows the estimated response time for each item type.

Item Type	MC	OE
Estimated Response Time (in minutes)	1.5	10 to 15

MATHEMATICS REPORTING CATEGORIES

The Assessment Anchors are organized into four classifications, as listed below.

- A = Numbers and Operations
- B = Algebraic Concepts
- C = Geometry
- D = Data Analysis and Probability

These four classifications are used throughout the grade levels. In addition to these classifications, there are five Reporting Categories for each grade level. The first letter of each Reporting Category represents the classification; the second letter represents the Domain as stated in the Common Core State Standards for Mathematics. Listed below are the Reporting Categories for Grade 3.

- A-T = Numbers and Operations in Base Ten
- A-F = Numbers and Operations—Fractions
- B-O = Operations and Algebraic Thinking
- C-G = Geometry
- D-M = Measurement and Data

Examples of multiple-choice and open-ended items assessing these categories are included in this booklet.

GENERAL DESCRIPTION OF SCORING GUIDELINES FOR MATHEMATICS OPEN-ENDED QUESTIONS

- 4 – The response demonstrates a *thorough* understanding of the mathematical concepts and procedures required by the task.**

The response provides correct answer(s) with clear and complete mathematical procedures shown and a correct explanation, as required by the task. Response may contain a minor “blemish” or omission in work or explanation that does not detract from demonstrating a *thorough* understanding.

- 3 – The response demonstrates a *general* understanding of the mathematical concepts and procedures required by the task.**

The response and explanation (as required by the task) are mostly complete and correct. The response may have minor errors or omissions that do not detract from demonstrating a *general* understanding.

- 2 – The response demonstrates a *partial* understanding of the mathematical concepts and procedures required by the task.**

The response is somewhat correct with *partial* understanding of the required mathematical concepts and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

- 1 – The response demonstrates a *minimal* understanding of the mathematical concepts and procedures required by the task.**

- 0 – The response has no correct answer and *insufficient* evidence to demonstrate any understanding of the mathematical concepts and procedures required by the task for that grade level.**

Response may show only information copied from the question.

Special Categories within zero reported separately:

BLK (blank).....Blank, entirely erased, or written refusal to respond

OTOff-task

LOE.....Response in a language other than English

IL.....Illegible

DESCRIPTION OF SAMPLE QUESTIONS

The mathematics multiple-choice questions begin on page 6. Each question is preceded by the Assessment Anchor and Eligible Content coding to which it aligns. Incorrect answer options are followed by the “rationale” which supports the student’s response. All correct answer options are indicated by an asterisk (*).

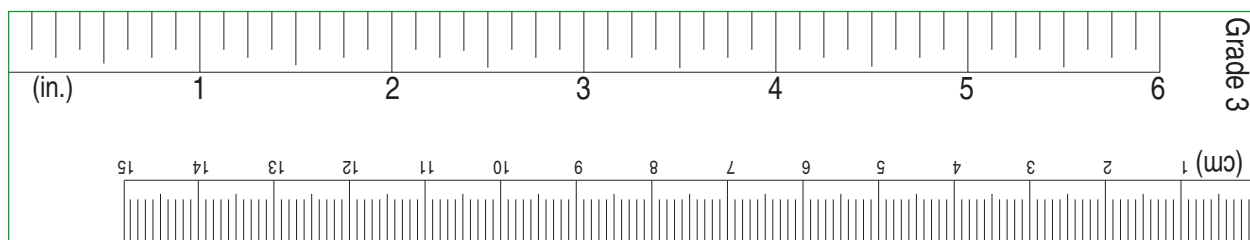
Three open-ended questions follow the multiple-choice questions. Each open-ended question includes question-specific scoring guidelines and examples of student responses with scores and annotations.

Since the PSSA is delivered in both paper-and-pencil and online formats, OE items of each method of test delivery are included in this sampler. The online OE sample items are presented as screen shots in a landscape orientation in order to best approximate the view of a computer monitor. The examples of student responses that follow the online OE sample items are also presented as screen shots.

Since students are not permitted to use a calculator on the grade 3 PSSA, all questions on the grade 3 sampler are to be solved without the use of a calculator. Scratch paper may be used in solving all questions, and a ruler similar to that shown below should be used to answer question number 36.

GRADE 3 RULER

The ruler shown below is not intended to be used to measure. It has been included as a representation of the rulers that will be provided for students when they take the test. Due to differences in printers, the ruler and measurement questions may not accurately reproduce to scale.



Directions: On the following pages are the Mathematics questions.

- You may not use a calculator on this test.
- You may need a ruler for question(s) on this test.

Directions for Multiple-Choice Questions:

Some questions will ask you to select an answer from among four choices.

For the multiple-choice questions:

- First solve the problem on scratch paper.
- Choose the correct answer and record your choice in the booklet.
- If none of the choices matches your answer, go back and check your work for possible errors.
- Only one of the answers provided is the correct response.

Directions for Open-Ended Questions:

Some questions will require you to write your response.

For the open-ended questions:

- These questions have more than one part. Be sure to read the directions carefully.
- You cannot receive the highest score for an open-ended question without completing all tasks in the question. For example, if the question asks you to show your work or explain your reasoning, be sure to show your work or explain your reasoning in the space provided.
- If the question does **not** ask you to show your work or explain your reasoning, you may use the space provided, but only those parts of your response that the question specifically asks for will be scored.
- Write your response in the appropriate location within the response box in the booklet. Some answers may require graphing, plotting, labeling, drawing, or shading. If you use scratch paper, be sure to transfer your final response and any needed work or reasoning to the booklet.

MULTIPLE-CHOICE QUESTIONS

A-T.1.1.3

A-T.1.1.1

1. Mrs. Jackson has 47 boxes of crayons.

There are 8 crayons in each box.

To estimate the total number of crayons, she uses the steps shown below.

- round 47 to the nearest ten
- multiply the new number by 8

What is Mrs. Jackson's estimate of the total number of crayons?

- (A) 320 rounds 47 down to 40
- (B) 400 *
- (C) 450 thinks $5 \times 8 = 45$, not 40
- (D) 580 adds the 8 to 50 and then puts a 0 on the end

A-T.1.1.3

A-T.1.1.1

2. George bought 9 cases of bottled water.

Each case had 18 bottles of water in it.

To estimate the number of bottles of water he bought, George rounded 18 to the nearest ten and then multiplied that number by 9.

What is George's estimate of the number of bottles of water he bought?

- (A) 90 rounds 18 down to 10
- (B) 180 *
- (C) 209 rounds correctly but then appends the 9 to the 20
- (D) 290 rounds correctly but then adds the 20 and 9 and puts a 0 on the end

A-T.1.1.3

A-T.1.1.2

3. Kelly is planting groups of seeds.

She places 4 seeds into each group.

She plants 22 groups of carrot seeds and 38 groups of lettuce seeds.

How many total seeds does Kelly plant?

- (A) 200 *22 + 38 and gets 50, not carrying the 1*
- (B) 240 *
- (C) 300 *thinks $6 \times 4 = 30$, not 24*
- (D) 640 *adds 60 and 4 and then appends a 0*

A-T.1.1.4

A-T.1.1.1

4. Three students were comparing how many times they each jumped on a trampoline.

Jorge jumped 345 times.

Keisha jumped 356 times.

LeVar jumped more times than Jorge and fewer times than Keisha.

When each student's total was rounded to the nearest hundred, Jorge's total and LeVar's total were the same.

Which value could be the number of times LeVar jumped on the trampoline?

- (A) 305 *picks a number that rounds correctly but is not greater than 345*
- (B) 347 *
- (C) 350 *thinks 350 rounds down, not up*
- (D) 362 *thinks $362 < 356$ because of the 2 in the ones place*

A-T.1.1.4

A-T.1.1.2

5. The table below shows the number of loaves of bread baked at a bakery on three days.

Bread Baked		
Day	Loaves Baked in the Morning	Loaves Baked in the Afternoon
Monday	302	636
Tuesday	78	511
Wednesday	410	316

Which list shows the days in order of total number of loaves of bread baked from **least** to **greatest**?

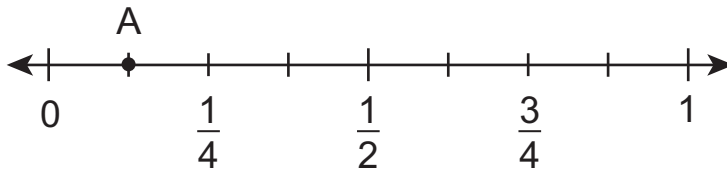
- Ⓐ Monday Tuesday Wednesday days in week order
- Ⓑ Tuesday Monday Wednesday morning only
- Ⓒ Wednesday Tuesday Monday afternoon only
- Ⓓ Tuesday Wednesday Monday *

A-F.1.1.2

6. In Sierra's third-grade class, $\frac{3}{8}$ of the students are boys.

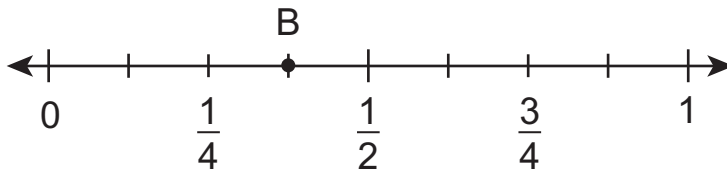
Which number line has a point on the fraction of the students that are boys?

(A)



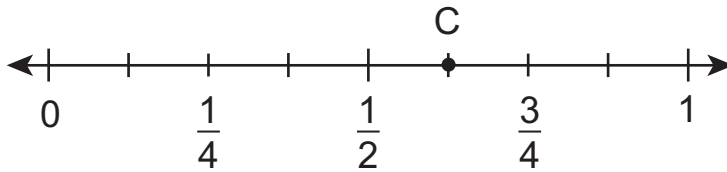
knows $\frac{3}{8}$ is less than $\frac{1}{2}$ but not able to compare to $\frac{1}{4}$

(B)



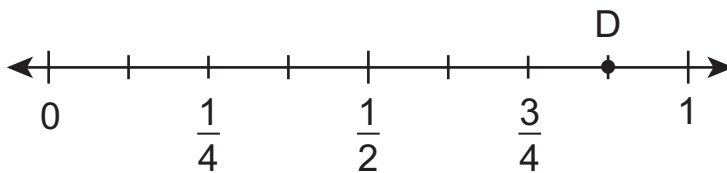
*

(C)



moves 3 tick marks from the wrong end of the number line

(D)



thinks $\frac{3}{8}$ is greater than $\frac{3}{4}$ because 8 is greater than 4

A-F.1.1.5

7. Bill and Cindy ate some pieces from the same pie.

Bill ate $\frac{3}{8}$ of the pie.

Cindy ate $\frac{1}{8}$ of the pie.

Which statement is true?

- Ⓐ Bill ate more pie than Cindy.

*

- Ⓑ Cindy ate more pie than Bill.

reverse is true

- Ⓒ Bill and Cindy ate the whole pie.

they ate half the pie

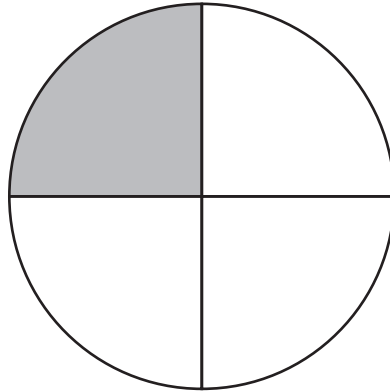
- Ⓓ Bill and Cindy ate the same amount of pie.

denominators are the same, so fractions must be the same

A-F.1.1.1

A-F.1.1.3

8. Fatima drew the figure shown below and shaded part of it.



Which fraction is equal to the amount Fatima shaded?

- (A) $\frac{2}{10}$ *miscounts and thinks 1/5 is shaded*
- (B) $\frac{2}{8}$ *
- (C) $\frac{2}{6}$ *ratio equivalent to 1 shaded and 3 unshaded parts*
- (D) $\frac{3}{1}$ *ratio of white to shaded*

A-F.1.1.3

A-F.1.1.1

9. There are 8 players on a basketball team.

There are 4 girls on the team.

What fraction of the players on the team are girls?

- (A) $\frac{1}{5}$ *incorrect simplification of fraction, subtracted 3 from num. and denom.*
- (B) $\frac{1}{4}$ *incorrect simplification of fraction, divided numerator by 4 and denom. by 2*
- (C) $\frac{1}{3}$ *incorrect naming of original fraction, 4/12 (part/part+whole)*
- (D) $\frac{1}{2}$ *

A-F.1.1.3

A-F.1.1.1

10. Lou bought 6 doughnuts.

There were 2 doughnuts with sprinkles.

Which fraction represents the doughnuts Lou bought that had sprinkles?

- (A) $\frac{1}{5}$ *starts with 2/6 and subtracts 1 from numerator and denominator*
- (B) $\frac{1}{3}$ *
- (C) $\frac{2}{4}$ *uses the number of unsprinkled donuts for the denominator*
- (D) $\frac{6}{10}$ *starts with 2/6 and adds 4 to the numerator and denominator*

B-O.1.2.1

11. Brent gave 8 colored pencils to each of his 4 friends.

Which number sentence can be used to find the total number of colored pencils (\square) Brent gave to his friends?

- (A) $8 + 4 = \square$ uses addition
- (B) $8 - 4 = \square$ uses subtraction
- (C) $8 \times 4 = \square$ *
- (D) $8 \div 4 = \square$ uses division

B-O.1.2.1

12. Kayla has 12 seeds.

She plants an equal number of seeds in each of 4 pots.

How many seeds did Kayla plant in each pot?

- (A) 3 *
- (B) 8 subtracts
- (C) 16 adds
- (D) 48 multiplies

B-O.1.2.2

13. Jill puts 24 brownies onto \square plates.

She put 4 brownies onto each plate.

The number sentence below can be used to find how many plates Jill uses.

$$24 \div \square = 4$$

How many plates (\square) does Jill use for brownies?

- (A) 6 *
- (B) 8 *knows 8 is a factor of 24*
- (C) 20 *24 - 4*
- (D) 28 *24 + 4*

B-O.2.1.2

A-T.1.1.3

14. There are 3 gorillas living in a zoo.

Each gorilla eats 40 pounds of food each day.

The expression $3 \times 7 \times 40$ represents the total amount of food, in pounds, the 3 gorillas eat in one week.

Which expression also represents the total amount of food, in pounds, the 3 gorillas eat in one week?

- (A) 3×47 *added instead of multiplied*
- (B) 7×43 *added instead of multiplied*
- (C) 28×40 *error in multiplication*
- (D) 120×7 *

B-O.2.1.2

B-O.2.1.1

15. There are 4 tables in Cleo's classroom.

She puts 2 packages of crayons on each table.

Each package has 8 crayons.

Cleo finds the total number of crayons on the tables by multiplying $4 \times 2 \times 8$.

Which expression shows another way Cleo could find the total number of crayons on the tables?

- | | |
|---------------------------|---|
| (A) $4 + 2 + 8$ | <i>uses addition symbol instead of multiplication symbol</i> |
| (B) $4 \times 8 + 2$ | <i>applies commutative property, but with addition symbol</i> |
| (C) $2 \times 4 \times 8$ | * |
| (D) $2 \times 4 + 8$ | <i>applies commutative property, but with addition symbol</i> |

B-O.2.2

16. Joey has 27 toy cars.

He puts an equal number of cars on each of the 3 shelves in his room.

He uses division to find the numbers of cars on each shelf.

Which number sentence shows a way Joey could find the number of cars on each shelf?

- | | |
|-----------------------|--|
| (A) $3 + ? = 27$ | <i>uses addition instead of multiplication</i> |
| (B) $3 \times ? = 27$ | * |
| (C) $3 + 27 = ?$ | <i>adds the numbers given in the stem</i> |
| (D) $3 \times 27 = ?$ | <i>uses multiplication, but incorrect placement of numbers</i> |

B-O.2.2.1

17. There are 6 ponies for children to ride at the fair.

In one hour, the ponies gave a total of 42 rides.

Each pony gave the same number of rides.

The equation below shows how to find the number of rides (\square) each pony gave.

$$42 \div 6 = \square$$

Which equation shows another way to determine how many rides (\square) each pony gave?

- | | |
|-----------------------------|---|
| (A) $42 - \square = 6$ | <i>subtracts</i> |
| (B) $6 + \square = 42$ | <i>adds</i> |
| (C) $\square \div 42 = 6$ | <i>reverses 42 and the unknown factor</i> |
| (D) $6 \times \square = 42$ | * |

B-O.3

18. Eva buys 3 bags of balloons.

There are 4 red balloons and 5 blue balloons in each bag.

Which expression shows how many red and blue balloons Eva buys?

- | | |
|-------------------------------|--|
| (A) $3 + 4 + 5$ | <i>only uses addition</i> |
| (B) $3 \times 4 \times 5$ | <i>only uses multiplication</i> |
| (C) $3 + 4 \times 3 + 5$ | <i>uses addition and multiplication but in incorrect locations</i> |
| (D) $3 \times 4 + 3 \times 5$ | * |

B-O.3.1

19. A bathtub is filled with 50 gallons of water.

Each gallon of water weighs between 8 and 9 pounds.

Which weight, in pounds, is **closest** to the weight of the water in the bathtub?

- (A) 42 place value error in multiplying
- (B) 420 *
- (C) 4,200 place value error in multiplying
- (D) 42,000 place value error in multiplying

B-O.3.1.2

20. Ed picked baskets of berries.

Jasmine picked 2 more baskets of berries than Ed picked.

Ed and Jasmine picked a total of 8 baskets of berries.

Which equation can be used to find the number of baskets () Ed picked?

- (A) $\square + 2 = 8$ used 2 for total number of baskets picked by Jasmine, instead of 2 more than "square"
- (B) $\square \times 2 = 8$ same number of baskets picked by each
- (C) $\square + \square + 2 = 8$ *
- (D) $\square + \square \times 2 = 8$ wrong operation, multiplied for 2 more than "square"

B-O.3.1.2

B-O.3.1.1

21. Carlos volunteers \square days at the library each month.

In March, he volunteered 3 extra days at the library.

In January, February, and March, Carlos volunteered a total of 39 days at the library.

Which pair of equations shows the number of days (\square) Carlos volunteers each month?

(A) $3 \times \square + 3 = 39$ *

$\square = 12$

(B) $3 \times \square = 39$ *ignores the 3 extra days*

$\square = 13$

(C) $3 \times \square - 3 = 39$ *subtracts the 3 extra days*

$\square = 14$

(D) $3 + \square = 39$ *finds the total number of regular days*

$\square = 36$

B-O.3.1.2

B-O.3.1.1

22. Last year, José subscribed to 4 different magazines.

He received 6 issues of each magazine.

He also bought 7 issues of other magazines at a bookstore.

Which pair of equations shows the total number of magazine issues (\square) José got last year?

(A) $4 + 6 + 7 = \square$
 $\square = 17$

adds all the numbers in the problem together

(B) $4 \times 6 + 7 = \square$
 $\square = 31$

*

(C) $4 \times 7 + 6 = \square$
 $\square = 34$

multiplies 4 by 7 instead of 6

(D) $4 + 7 \times 6 = \square$
 $\square = 46$

multiplies the wrong two numbers together

C-G.1.1

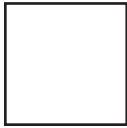
23. Marquis and Shawn built a tree house.

The shape of the floor of the tree house is a quadrilateral.

The shape of the floor is **not** a rectangle or a rhombus.

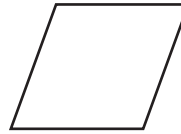
Which quadrilateral could be the shape of the floor of the tree house?

(A)



square (rectangle and rhombus)

(B)



rhombus

(C)



rectangle

(D)



*

C-G.1.1

24. A map is drawn in the shape of a square.

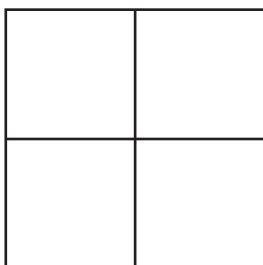
The map is then divided into parts.

Each part has an area equal to $\frac{1}{4}$ the area of the entire map.

Each part is a rectangle but is **not** a square.

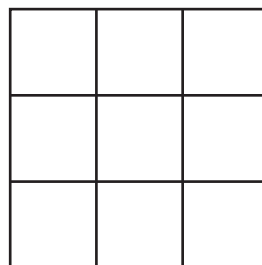
Which figure could show how the map is divided?

Ⓐ



selects one with $\frac{1}{4}$ the area but divided into squares

Ⓑ



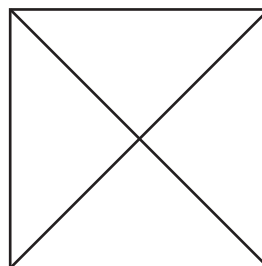
selects one with areas equal to $\frac{1}{9}$, not $\frac{1}{4}$, of the total area

Ⓒ



*

Ⓓ



selects one in which the areas are neither rectangles nor squares

C-G.1.1

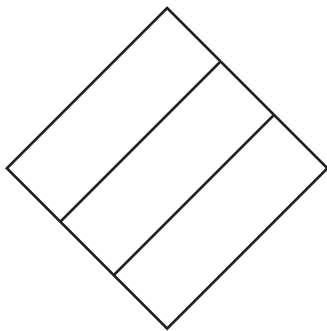
25. Carol draws a rhombus.

It is **not** a square.

She divides it into three equal-size parts.

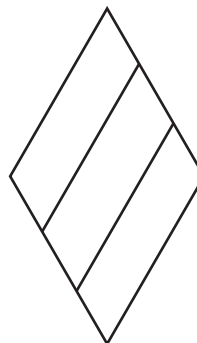
Which figure could be Carol's rhombus?

(A)



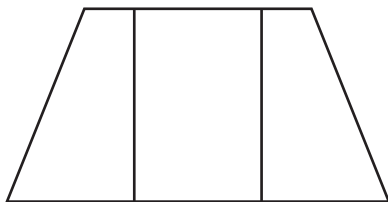
square

(B)



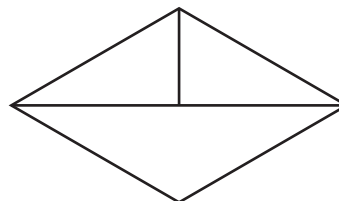
*

(C)



not a rhombus

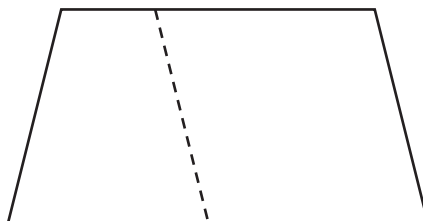
(D)



3 non-equal areas

C-G.1.1.2

26. Paul divides a shape into two parts by drawing one line as shown below.



Which term describes the two parts and the original shape?

(A) octagon

counts 2 shapes with 4 sides each = 8 sides

(B) quadrilateral

*

(C) rhombus

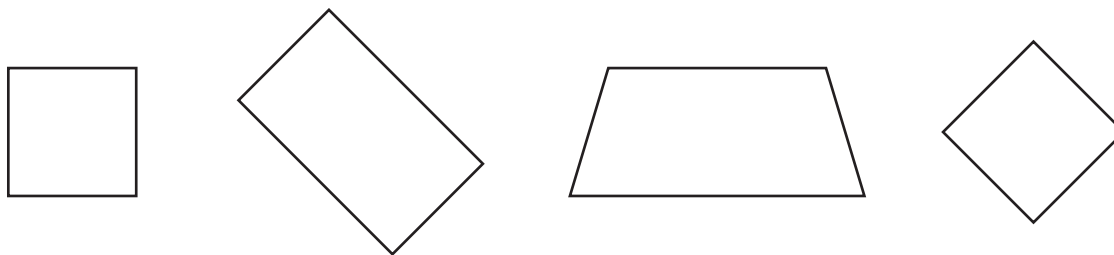
shape on right is a rhombus

(D) square

considers only the right shape and does not consider the angle measure

C-G.1.1.2

27. Four shapes are shown below.



Which statement is true?

(A) The four shapes are all trapezoids.

third shape only

(B) The four shapes are all rectangles.

first, second, and fourth shapes

(C) The four shapes are all quadrilaterals.

*

(D) The four shapes are all parallelograms.

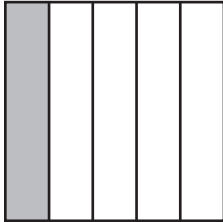
first, second, and fourth shapes

C-G.1.1.3

28. Lee has quilt patches.

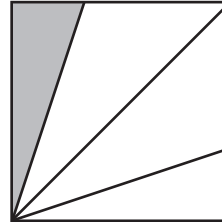
Which quilt patch has $\frac{1}{4}$ of its area shaded?

(A)



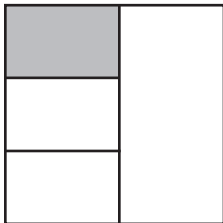
1/5, ratio of 1 section shaded to 4 sections unshaded

(B)



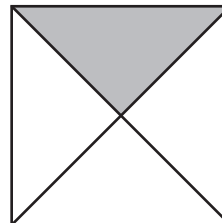
1 of 4 areas, but area is only 1/6 of the patch

(C)



1 of 4 areas, but area is only 1/6 of the patch

(D)



*

D-M.1

29. Dana has three coins in her pocket.

No two coins have the same value.

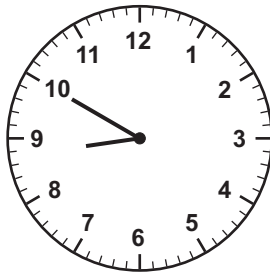
What is the **least** amount of money Dana could have in her pocket?

- (A) 3¢ *thinks all three are pennies*
- (B) 11¢ *counts two nickels and a penny*
- (C) 16¢ *
- (D) 40¢ *uses a quarter, dime, and nickel (no coins the same, but not least possible amount)*

D-M.1.1.1

D-M.1.1.2

30. Kelly went to bed 30 minutes after the time shown on the clock.



At what time did Kelly go to bed?

- (A) 8:40 *read time as 8:10*
- (B) 9:20 *
- (C) 9:40 *read time as 9:10*
- (D) 10:20 *read time as 9:50*

D-M.1.1.2

B-O.3.1.3

31. Marco arrived at the beach between 10:30 A.M. and 10:35 A.M.

He left the beach between 11:10 A.M. and 11:15 A.M.

Which is a possible amount of time Marco was at the beach?

(A) 25 minutes

subtracted 35 – 10

(B) 40 minutes

*

(C) 60 minutes

only looked at the hours (11 – 10 = 1 hour = 60 minutes)

(D) 75 minutes

subtracted 1110 – 1035

D-M.1.2.2

A-T.1.1.3

32. Ethan is knitting a blanket.

He will use 20 balls of yarn.

There are 8 ounces of yarn in each ball.

How many ounces of yarn will Ethan use to knit the blanket?

(A) 28

added

(B) 100

added and made error in place value

(C) 160

*

(D) 208

added and made error in place value

D-M.1.3.2

33. Dante bought a package of carrots that cost \$3.76.

He used \$4.00 to pay for the carrots.

Which group of coins shows the correct amount of change Dante should receive after paying for the carrots?



displays change paid, not change received



wrong coin amounts, used nickels instead of dimes



subtraction error, subtracted .25 and then added .01 instead of subtracting .01



*

D-M.1.3.3

34. Megan buys a book.

Rounded to the nearest dollar, her book costs \$8.

Which amount could be the exact cost of the book?

- | | | |
|---|--------|--|
| Ⓐ | \$7.48 | <i>rounds the 4 to 5 and then the 7 to 8 (double rounding)</i> |
| Ⓑ | \$7.61 | * |
| Ⓒ | \$8.83 | <i>rounds down</i> |
| Ⓓ | \$9.08 | <i>rounds down by subtracting 1 from the ones place</i> |

D-M.2.1.1


A-T.1.1.1

35. There are 77 third graders at Tyler's school.

Which pictograph shows this number of third graders rounded to the nearest 10?

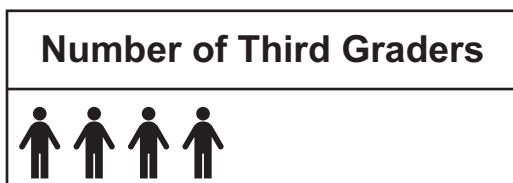
(A)




Key:  = 10 students

rounds down to 70 and uses a scale of 20

(B)




Key:  = 10 students

uses a scale of 20

(C)




Key:  = 10 students

rounds down to 70

(D)

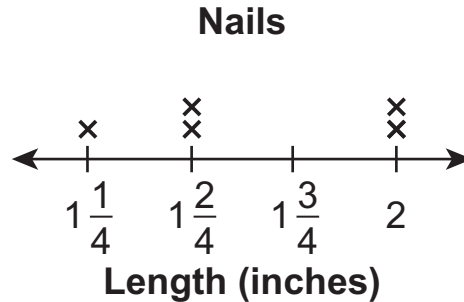


Key:  = 10 students

*

D-M.2.1.3

36. Kim measured the lengths of nails she found.
She made the line plot shown below.



After making the line plot, she found two additional nails.



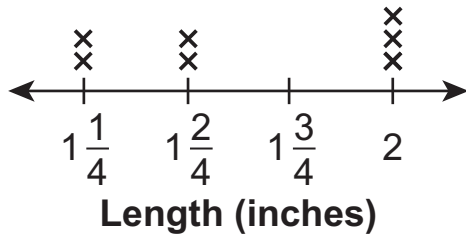
Use your ruler to measure the lengths of the two nails.

Which line plot now shows the lengths of all the nails Kim found?

(Answer the question on the next page.)

Ⓐ

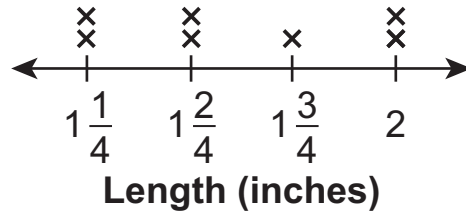
Nails



*measures the second nail as 2 inches,
accidentally starting at 1/4*

Ⓑ

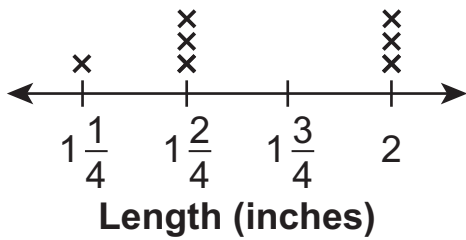
Nails



*

Ⓒ

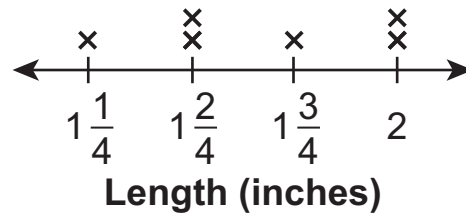
Nails



*measures the nails as 1 2/4 inches and
2 inches, off by 1/4 inch in both cases*

Ⓓ

Nails



*includes only the second nail in the
line plot*

D-M.2.1.4

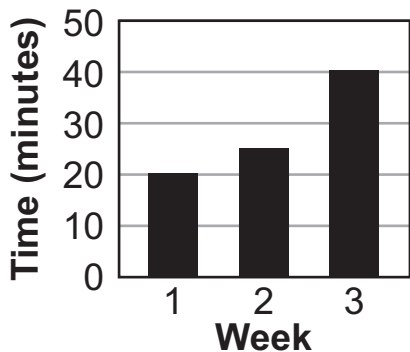
37. The table below shows how much time Sam practiced each week.

Sam's Practice Times

Week	Time (minutes)
1	25
2	20
3	40

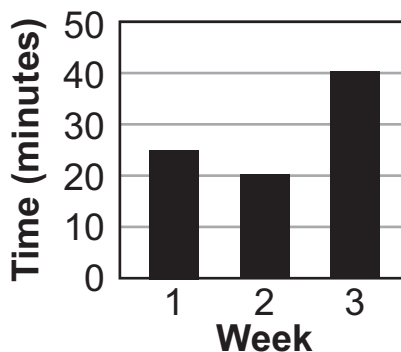
Which bar graph shows how much time Sam practiced each week?

Ⓐ **Sam's Practice Times**



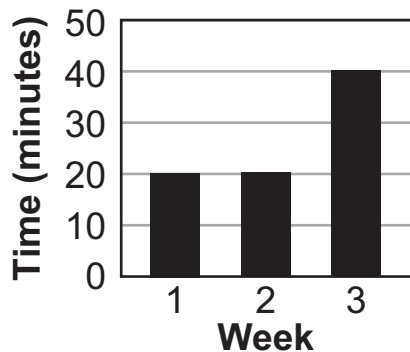
bars in ascending order by height

Ⓑ **Sam's Practice Times**



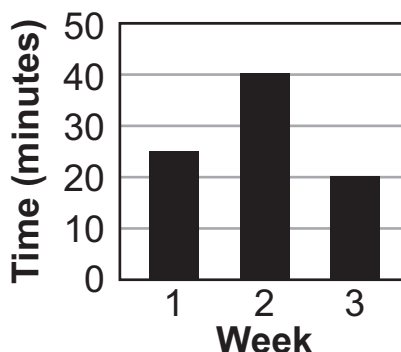
*

Ⓒ **Sam's Practice Times**



rounds week 1 down to gridline

Ⓓ **Sam's Practice Times**

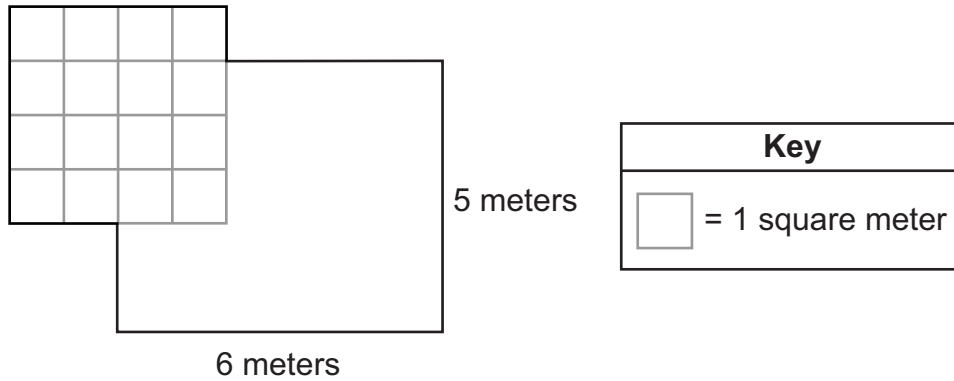


switches weeks 2 and 3

D-M.3.1

38. The drawing below shows Simone's bedroom floor.

Simone's Bedroom Floor

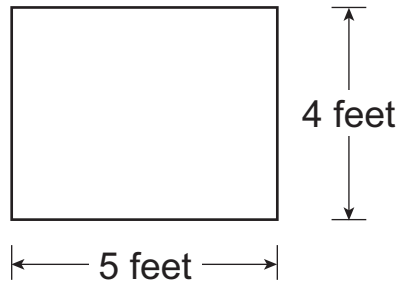


What is the area, in square meters, of Simone's bedroom floor?

- (A) 17 counted the squares and added 1 for the rectangle
- (B) 27 counted the squares and added the dimensions of the rectangle
- (C) 40 *
- (D) 46 added area of rectangle and counted the squares

D-M.3.1.2

39. Natalie made a rug in the shape of the rectangle shown below.

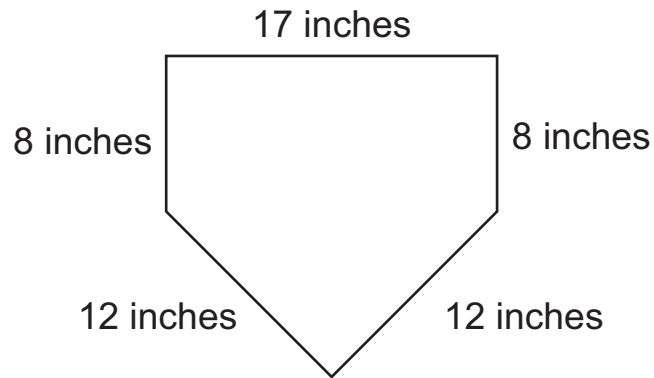


Which rug has the same area as the one Natalie made?

- (A) 2 feet
7 feet
same perimeter, different area
- (B) 2 feet
10 feet
*
- (C) 3 feet
7 feet
value of perimeter (20) same as value of given area
- (D) 3 feet
8 feet
multiplication error

D-M.4.1.1

40. The size and shape of home plate on a baseball field are shown below.



What is the perimeter, in inches, of home plate?

- | | | |
|---|-----|--|
| Ⓐ | 37 | <i>adds $17 + 8 + 12$, ignoring duplicated numbers</i> |
| Ⓑ | 40 | <i>forgets to include the 17 inches at the top</i> |
| Ⓒ | 57 | * |
| Ⓓ | 136 | <i>multiplies 8×17 as if finding the area of the rectangular portion</i> |

FIRST OPEN-ENDED QUESTION

C-G.1

41. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake



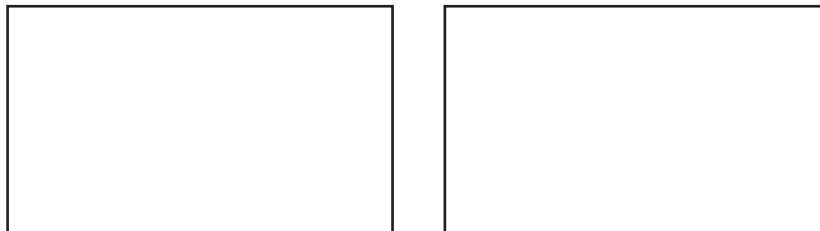
- A.** What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW**.

Answer: _____

Marco cut the cake into 8 equal pieces.

- B. SHOW** two ways Marco could cut his cake into 8 equal pieces.



41. Continued. Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake



She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

ITEM-SPECIFIC SCORING GUIDELINE

Question #41

Grade 3

Assessment Anchor this item will be reported under:

M03.C-G.1—Reason with shapes and their attributes.

Specific Anchor Descriptor addressed by this item:

M03.C-G.1.1—Analyze characteristics of polygons.

Scoring Guide:

Score	In this item, the student—
4	Demonstrates a thorough understanding of how to reason with shapes and their attributes by correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of how to reason with shapes and their attributes by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of how to reason with shapes and their attributes by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of how to reason with shapes and their attributes.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-scorables	BLK (blank)Blank, entirely erased, or written refusal to respond OTOff-task LOEResponse in a language other than English ILIllegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of how to reason with shapes and their attributes.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.


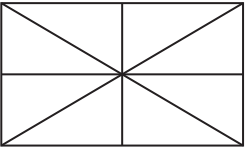
Question #41

Top Scoring Response:

Part A Answer	
What?	Why?
<p>Answers may vary. Accept rectangle, parallelogram, quadrilateral, or polygon.</p> <p>Sample Response: rectangle</p>	

(1 score point)

1 point for correct answer

Part B Answer	
What?	Why?
<p>Answers may vary. Each rectangle should be divided into 8 equal-sized pieces, but cut in different ways.</p> <p>Sample Response:</p> <div style="display: flex; align-items: center; gap: 20px;">   </div>	

(2 score points)

1 point for each correct answer

Part C Answer	
What?	Why?
	<p>Sample Explanation: The cakes are the same size to start with. Nikki's cake has more pieces, but each of those pieces is smaller than each of the pieces of Marco's cake.</p>

(1 score point)

1 point for complete explanation

FIRST OPEN-ENDED QUESTION RESPONSES

C-G.1 Response Score: 4

41. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake



A. What word describes the shape of the top of Marco's cake?

PUT your answer in the BLANK BELOW.

The student has given a correct answer.

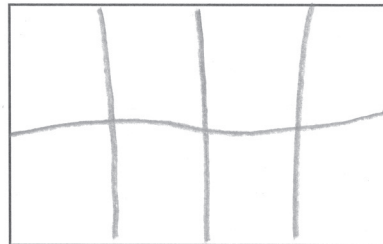
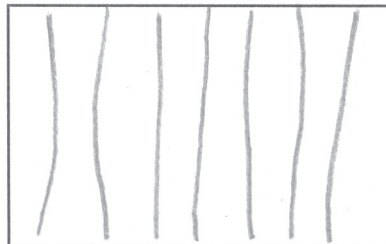
Answer:

rectangle

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.

The student has given two correct answers.

GO ON 

41. Continued. Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake



She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

Nikki got more pieces because
she cut them smaller. The
cake is still the same size.

The student has given a complete explanation.

C-G.1 Response Score: 3

41. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake



A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW**.

The student has given a correct answer.

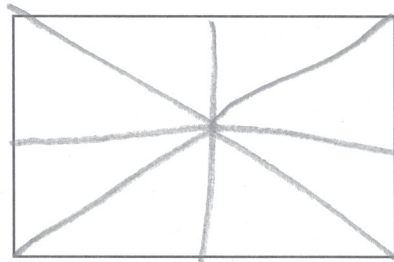
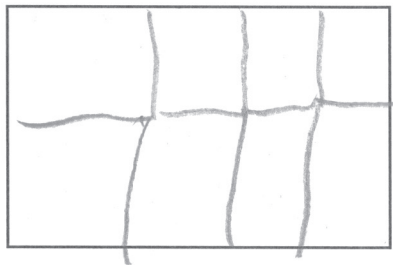
Answer: _____

Parallelogram

Marco cut the cake into 8 equal pieces.

B. SHOW two ways Marco could cut his cake into 8 equal pieces.

The student has given two correct answers.



GO ON 

41. Continued. Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake



She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

*She just has more
pieces.*

The student has given an insufficient explanation.

C-G.1 Response Score: 2

41. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake



- A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW**.

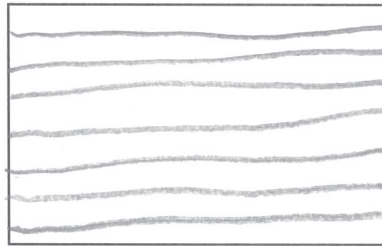
The student has given an incorrect answer.

Answer: square

Marco cut the cake into 8 equal pieces.

- B. **SHOW** two ways Marco could cut his cake into 8 equal pieces.

The student has given two correct answers.



GO ON 

41. Continued. Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake



She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

Because Marco's pieces
are bigger.

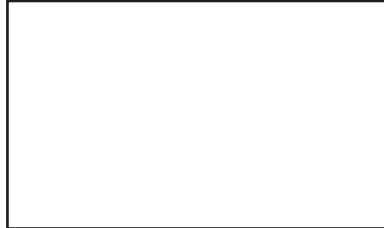
The student has given an incorrect explanation.

C-G.1 Response Score: 1

41. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake



- A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW**.

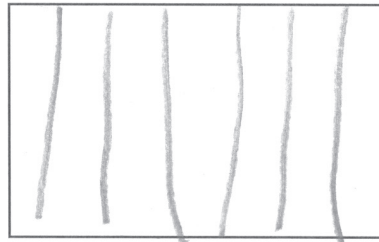
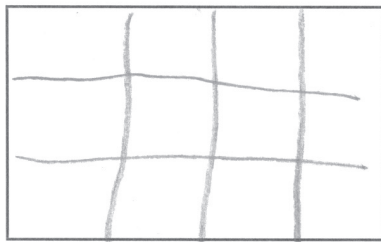
The student has given a correct answer.

Answer: Rectangle

Marco cut the cake into 8 equal pieces.

- B. **SHOW** two ways Marco could cut his cake into 8 equal pieces.

The student has given incorrect answers.



GO ON 

41. Continued. Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake



She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

Nikki has a big cake with lots
of pieces

The student has given an incorrect explanation.

C-G.1 Response Score: 0

41. Marco bought a cake for his family.

The picture below shows the top of Marco's cake.

Marco's Cake



A. What word describes the shape of the top of Marco's cake?

PUT your answer in the **BLANK BELOW**.

The student has given an incorrect answer.

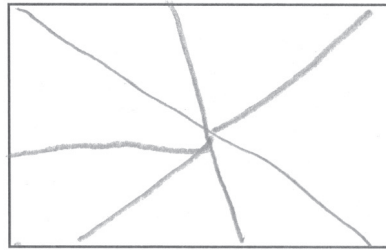
Answer: _____

square

Marco cut the cake into 8 equal pieces.

B. **SHOW** two ways Marco could cut his cake into 8 equal pieces.

The student has given incorrect answers.

GO ON 

41. Continued. Please refer to the previous page for task explanation.

The top of Nikki's cake is shown below.

Nikki's Cake



She cut her cake into 16 equal pieces.

Nikki says that her cake is bigger than Marco's cake because it has more pieces.

C. EXPLAIN why Nikki is **not** correct.

I like big cakes.

The student has given an incorrect explanation.

SECOND OPEN-ENDED QUESTION

D-M.2

Question 42 ☒
 Page 1 of 2

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

0 / 1000

Answer: classmates

Review/End Test

Exit

Flag

Options

Next

Question 42 ☒
Page 2 of 2



Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

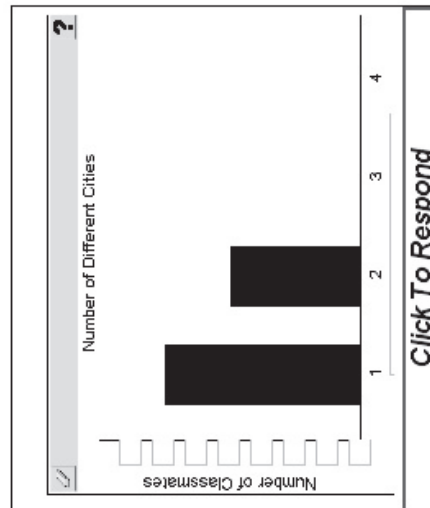
Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data.

She only finished the bars for the students who lived in 1 city or 2 cities.

B. COMPLETE the bar graph shown below.

- **COMPLETE** the scale for the number of classmates.
- **DRAW** the bars to represent the number of students who have lived in 3 different cities and 4 different cities.



ITEM-SPECIFIC SCORING GUIDELINE

Question #42

Grade 3

Assessment Anchor this item will be reported under:

M03.D-M.2—Represent and interpret data.

Specific Anchor Descriptor addressed by this item:

M03.D-M.2.1—Organize, display, and answer questions based on data.

Scoring Guide:

Score	In this item, the student—
4	Demonstrates a thorough understanding of representing and interpreting data by correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of representing and interpreting data by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of representing and interpreting data by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of representing and interpreting data.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-scorables	BLK (blank)Blank, entirely erased, or written refusal to respond OT.....Off-task LOEResponse in a language other than English IL.....Illegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of representing and interpreting data.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

Question #42

Top Scoring Response:

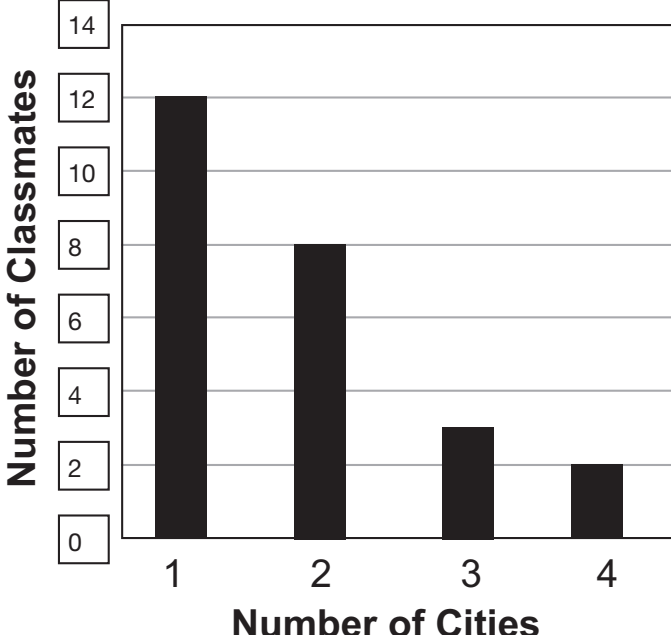
Part A Answer	
What?	Why?
2 (classmates)	Sample Work: $25 - 12 - 8 - 3 = 2$ OR Sample Explanation: First I found the total number of classmates already included in the table (23). Then, I subtracted that total from the number of classmates in the class (25) to get 2 classmates who lived in 4 different cities.

(2 score points)

1 point for correct answer

1 point for complete support

OR ½ point for correct but incomplete support

Part B Answer	
What?	Why?
<p>Number of Different Cities</p>  <p>Number of Classmates</p> <p>Number of Cities</p> <p>[Note: Carry over any error from Part A, unless Part A is blank]</p>	

(2 score points)

1 point for correct labels

½ point for each correct bar

SECOND OPEN-ENDED QUESTION RESPONSES

D-M.2 Response Score: 4

Question 42

Page 1 of 2

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

$$12 + 8 + 3 = 23$$

$$25 - 23 = 2$$

27 / 1000

Answer: classmates

The student has given a correct answer.
The student has shown complete support.

Question 42
Page 2 of 2



Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

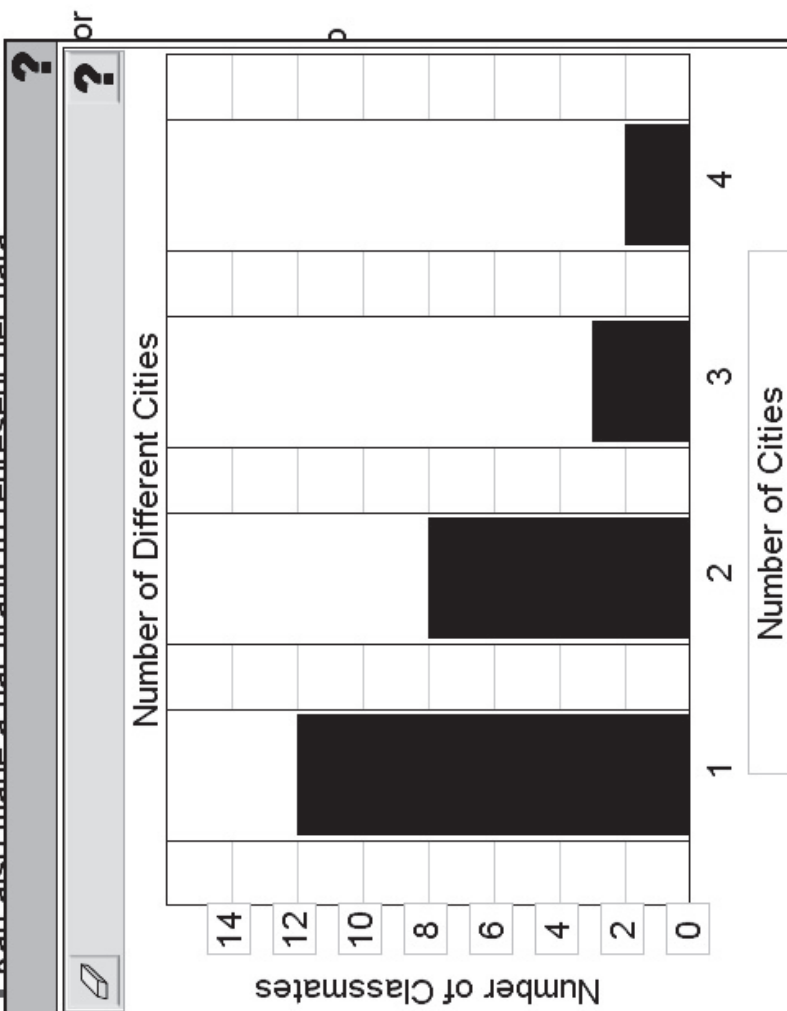
She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data.



The student has given correct labels.
The student has graphed each bar correctly.



D-M.2 Response Score: 3

Question 42

Page 1 of 2

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

I added them all and got 23 then I subtracted and got my answer 2

$12 + 8 + 3 = 23$

$25 - 23 = 2$

Answer: classmates

The student has given a correct answer.
The student has shown complete support.

Question 42

Page 1 of 2

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Question 42
Page 2 of 2



Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

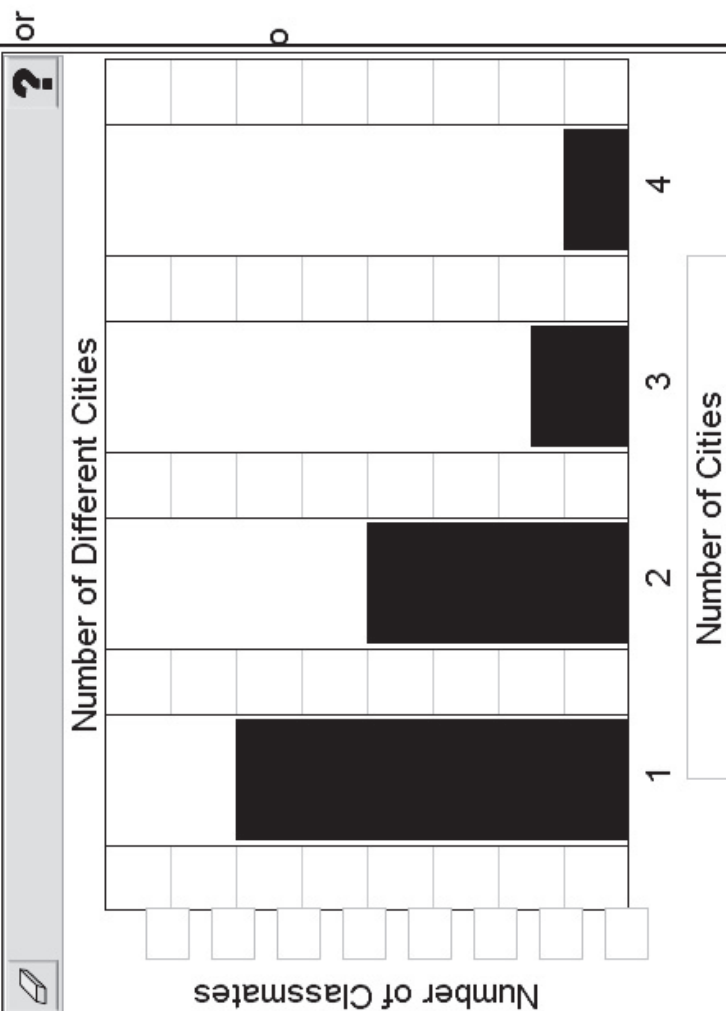
She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data.



The student has graphed each bar correctly.
The student has not given any labels.

OK

Review/End Test

Exit

Flag

Options



Back

D-M.2 Response Score: 2

Question 42

Page 1 of 2

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data	
Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

Eq

25-12=14
14-8=6
6-3=3

21 / 1000

Answer: classmates

The student has given an incorrect answer due to a calculation error.
The student has shown complete support.

Next

Options

Flag

Exit

Review/End Test

Question 42
Page 2 of 2



Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

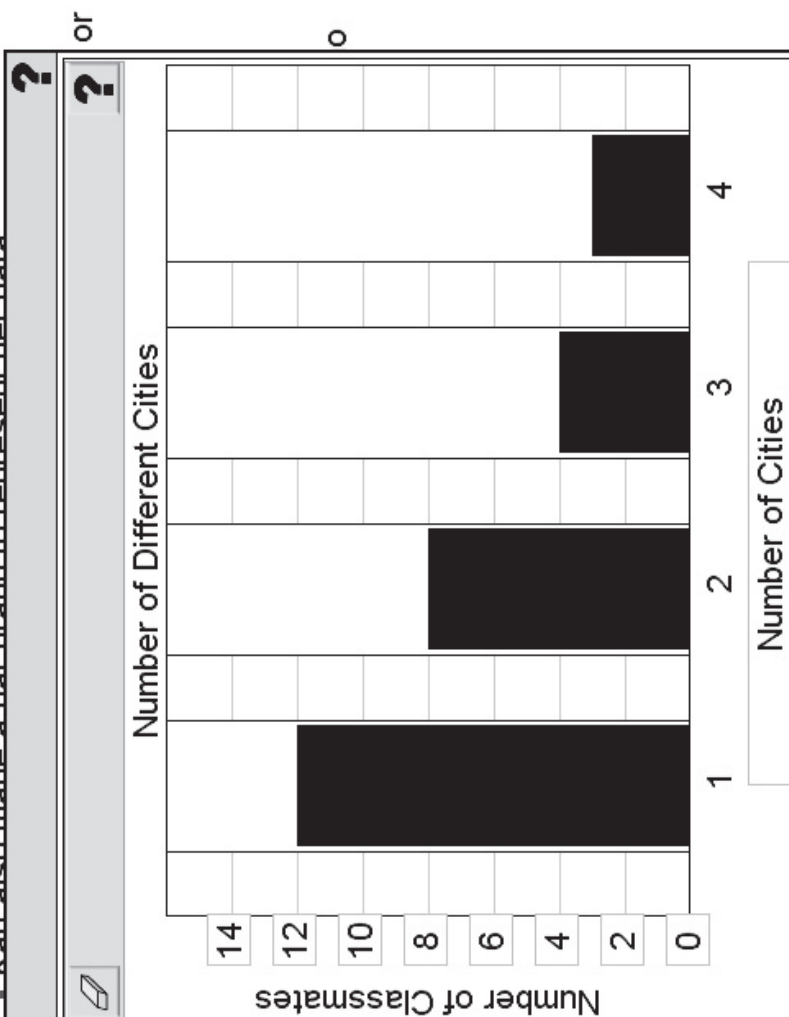
She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data.



The student has given correct labels.
The student has graphed one bar correctly, based on Part A.



D-M.2 Response Score: 1

Question 42

Page 1 of 2

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

EQ

i added them up
 $12 + 8 + 3 = 23$

31 / 1000

Answer: classmates

The student has given an incorrect answer.
 The student has given incorrect support.

Question 42
Page 2 of 2



Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

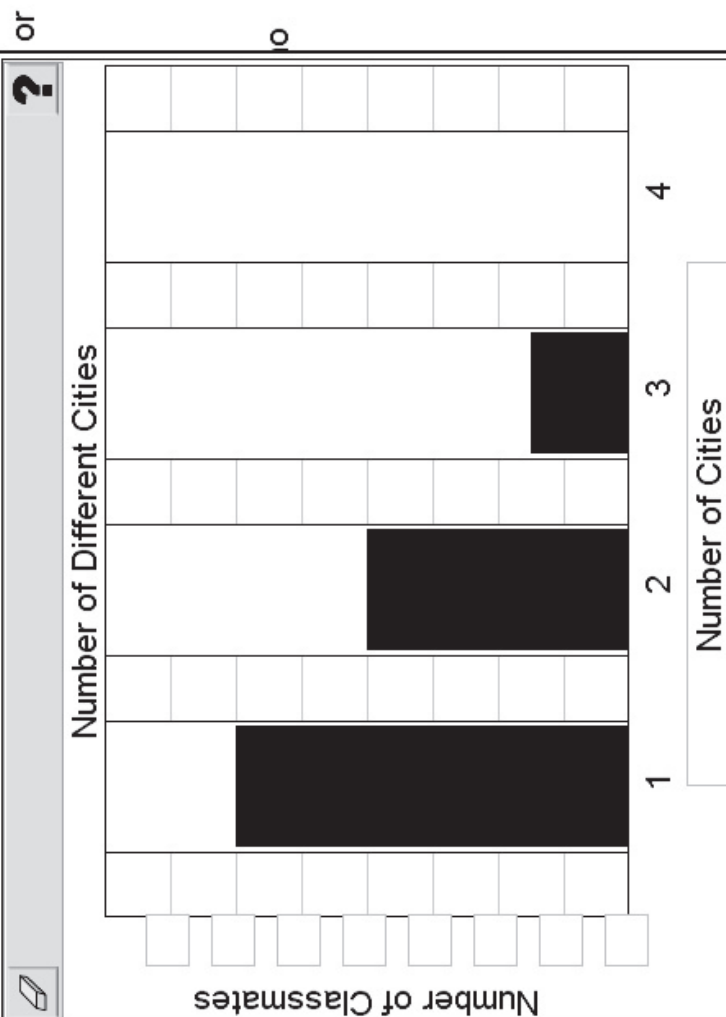
She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data.



OK

The student has graphed only one bar correctly.
The student has not given any labels.

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Options

Flag

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Review/End Test

D-M.2 Response Score: 0

Question 42

Page 1 of 2

Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

A. How many classmates lived in 4 different cities?

PUT your answer in the **BLANK BELOW**.

SHOW or **EXPLAIN** all your work.

Eq
8 / 1000

Answer: classmates

The student has given an incorrect answer.
The student has given incorrect support.

Review/End Test

Exit

Flag

Options

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Question 42
Page 2 of 2



Kari collected data from 25 of her classmates. She asked her classmates to tell her how many different cities they have each lived in.

None of Kari's classmates have lived in more than 4 different cities.

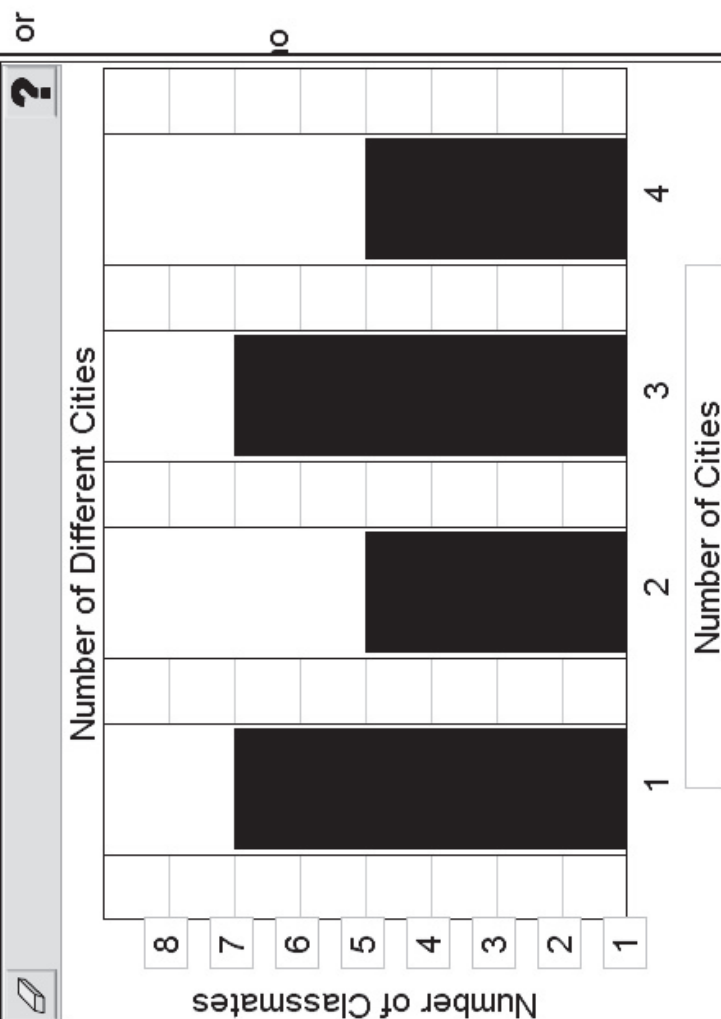
She created the table shown below to represent her data.

She did not include the information for the number of classmates who lived in 4 different cities.

Kari's Data

Number of Cities	Number of Classmates
1	12
2	8
3	3
4	?

Kari also made a bar graph to represent her data.



OK

The student has given incorrect labels.
The student has graphed each bar incorrectly.

Review/End Test

Exit

Flag

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THIRD OPEN-ENDED QUESTION

D-M.3

43. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

- A. What is the area, in square feet, of the piece of wood?

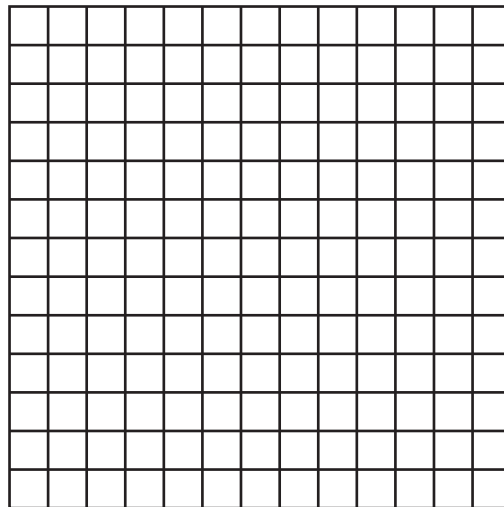
PUT your answer in the **BLANK BELOW**.

Answer: _____ square feet

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

- B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

GO ON 

43. Continued. Please refer to the previous page for task explanation.

C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

ITEM-SPECIFIC SCORING GUIDELINE

Question #43

Grade 3

Assessment Anchor this item will be reported under:

M03.D-M.3—Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Specific Anchor Descriptor addressed by this item:

M03.D-M.3.1—Find the areas of plane figures.

Scoring Guide:

Score	In this item, the student—
4	Demonstrates a thorough understanding of how area relates to multiplication and addition by correctly solving problems and clearly explaining procedures.
3	Demonstrates a general understanding of how area relates to multiplication and addition by correctly solving problems and clearly explaining procedures with only minor errors or omissions.
2	Demonstrates a partial understanding of how area relates to multiplication and addition by correctly performing a significant portion of the required task.
1	Demonstrates minimal understanding of how area relates to multiplication and addition.
0	The response has no correct answer and insufficient evidence to demonstrate any understanding of the mathematical concepts and procedures as required by the task. Response may show only information copied from the question.
Non-scorables	BLK (blank)Blank, entirely erased, or written refusal to respond OT.....Off-task LOEResponse in a language other than English IL.....Illegible

Top Scoring Student Response And Training Notes:

Score	Description
4	Student earns 4 points.
3	Student earns 3.0 – 3.5 points.
2	Student earns 2.0 – 2.5 points.
1	Student earns 0.5 – 1.5 points. OR Student demonstrates minimal understanding of how area relates to multiplication and addition.
0	Response is incorrect or contains some correct work that is irrelevant to the skill or concept being measured.

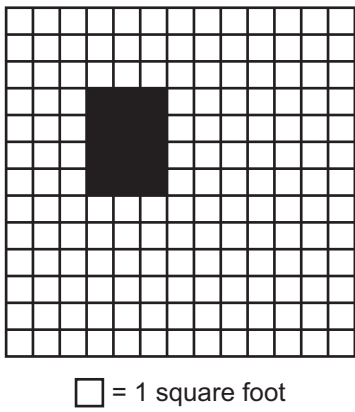
Question #43

Top Scoring Response:

Part A Answer	
What?	Why?
12 (square feet)	

(1 score point)

1 point for correct answer

Part B Answer	
What?	Why?
<p>Answers may vary. Accept all rectangles with an area of 12 squares such that neither side length is equal to 2 feet.</p> <p>Sample Response:</p>  <p>[Note: Carry over any error from Part A]</p>	

(1 score point)

1 point for correct answer

Part C Answer	
What?	Why?
	<p>Sample Explanation: The area of the second piece of wood is $3 \times 4 = 12$ square feet, which is the same as the area of the first piece of wood. [Note: Carry over any errors from Part A and Part B]</p>

(1 score point)

1 point for complete explanation

OR ½ point for correct but incomplete explanation

Part D Answer	
What?	Why?
	<p>Sample Explanation: I counted the squares inside the rectangle and there were 12 of them. [Note: Carry over any errors from Part A and Part B]</p>

(1 score point)

1 point for complete explanation

OR ½ point for correct but incomplete explanation

THIRD OPEN-ENDED QUESTION RESPONSES

D-M.3 Response Score: 4

43. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

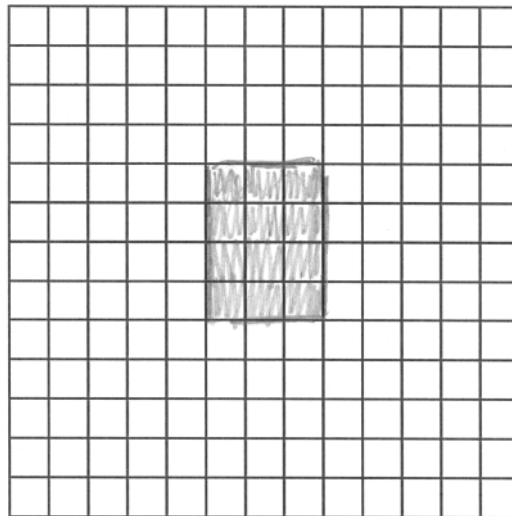
Answer: 12 square feet

The student has given a correct answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. DRAW and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

The student has given a correct answer.

GO ON

43. **Continued.** Please refer to the previous page for task explanation.

- C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

Because $3 \times 4 = 12$ and so
does $2 \times 6 = 12$ they are
the same.

The student has given a complete explanation.

- D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

If you count the squares
there are 12 of them.

The student has given a complete explanation.

D-M.3 Response Score: 3

43. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

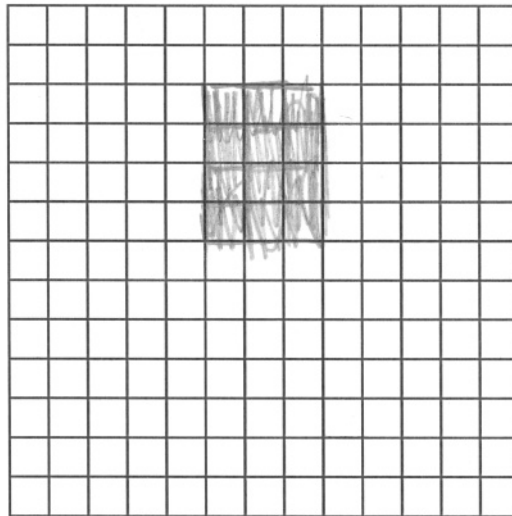
Answer: 12 square feet

The student has given a correct answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



$\square = 1$ square foot

The student has given a correct answer.

GO ON 

43. **Continued.** Please refer to the previous page for task explanation.

- C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

They both equal 12
because $6 \times 2 = 12$
and $3 \times 4 = 12$

The student has given a complete explanation.

- D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

I counted the
squares.

The student has given a correct but an incomplete explanation.

D-M.3 Response Score: 2

43. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

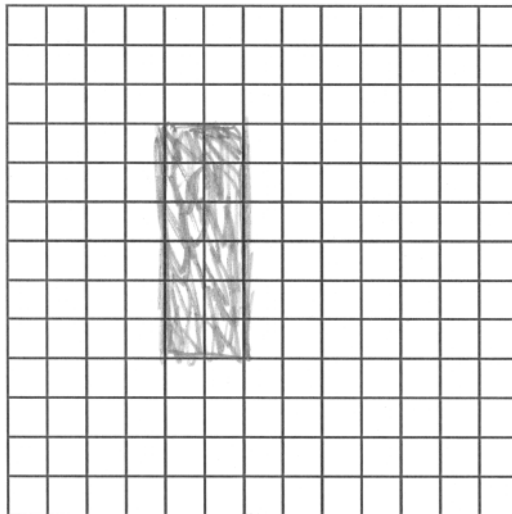
Answer: 12 square feet

The student has given a correct answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = 1 square foot

The student has given an incorrect answer.

GO ON 

43. **Continued.** Please refer to the previous page for task explanation.

- C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

2 times 6 equals 12

The student has given a correct answer but an incomplete explanation.

- D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

It has the same number there
are 12 squares.

The student has given a complete explanation.

D-M.3 Response Score: 1

43. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

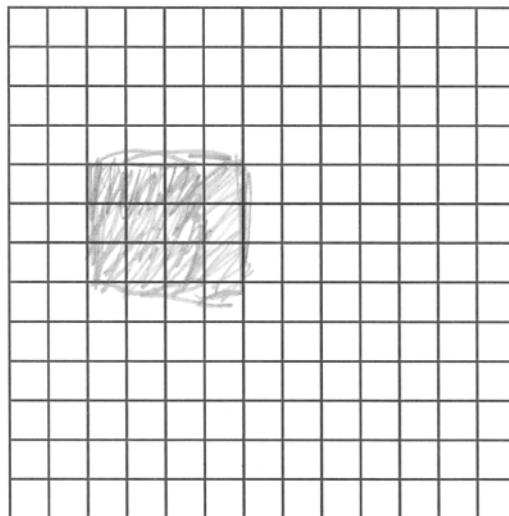
A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.Answer: 8 square feet

The student has given an incorrect answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood. = 1 square foot

The student has given a correct answer.

GO ON 

43. **Continued.** Please refer to the previous page for task explanation.

- C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

It is the same area.

The student has given an incorrect explanation.

- D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

It is a rectangle.

The student has given an incorrect explanation.

D-M.3 Response Score: 0

43. Jake has some pieces of wood.

Each piece of wood is in the shape of a rectangle.

Jake is painting a piece of wood that has side lengths of 2 feet and 6 feet.

A. What is the area, in square feet, of the piece of wood?

PUT your answer in the **BLANK BELOW**.

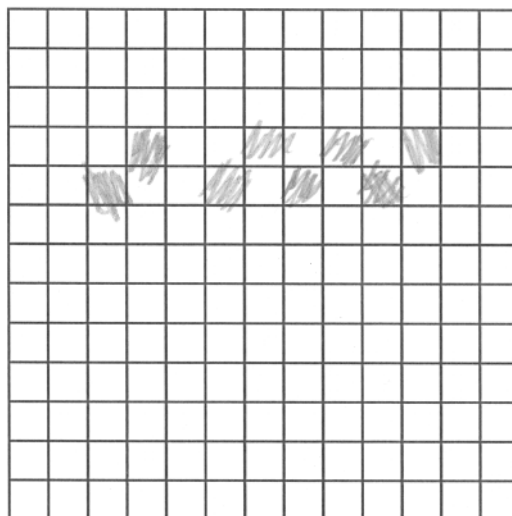
Answer: 8 square feet

The student has given an incorrect answer.

Jake paints another piece of wood that has the same area as the first one.

None of the side lengths of the piece of wood is 2 feet.

B. **DRAW** and **SHADE** in a rectangle on the grid below to represent one possible size of the second piece of wood.



☐ = square foot

The student has given an incorrect answer.

GO ON

43. **Continued.** Please refer to the previous page for task explanation.

- C. Using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

$$2 \times 6 = 8$$

The student has given an incorrect explanation.

- D. Without using multiplication, **EXPLAIN** how you know the rectangle you drew in **part B** has the same area as the first piece of wood.

IDK

The student has given an incorrect explanation.

PSSA Grade 3 Mathematics Preliminary Item and Scoring Sampler

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