



The Pennsylvania System of School Assessment

Mathematics Item and Scoring Sampler

SUPPLEMENT

2009–2010
Grade 6

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MATHEMATICS

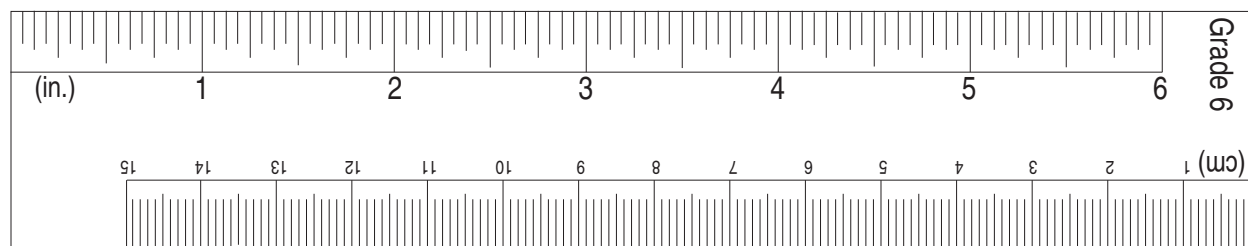
INTRODUCTION

The 2009–2010 Mathematics Item and Scoring Sampler Supplement displays released items from the 2009 PSSA operational test. The sampler supplement is to be used in conjunction with the previous year’s item sampler. The 2008–2009 Mathematics Item and Scoring Sampler can be found on the Pennsylvania Department of Education website at <http://www.pde.state.pa.us/>. Select the “Pre K–12 Schools” tab at the top of the page. Then select “Assessment” in the “Learn About” column to the left. Select “Resource Materials” in the “Learn About” column of the next page, and then scroll down to find the appropriate sampler. Alternately, you may type in or click this link to reach the location of the item samplers: http://www.pde.state.pa.us/a_and_t/cwp/view.asp?a=108&Q=73314&a_and_tNav=680&a_and_tNav=

This item and scoring sampler supplement contains 16 mathematics multiple-choice items and 1 open-ended item. Each item is preceded by the Assessment Anchor and Eligible Content coding. The majority of multiple-choice answer options are followed by a brief analysis or rationale. The correct answer is indicated by an asterisk. The table following each multiple-choice item displays the percentages of students who chose each answer option. The correct answer is also shaded in these tables. The table following the open-ended item indicates the students’ performance for each scorepoint. Sample student responses for each of the scoring levels are also included for the open-ended item.

GRADE 6 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, etc., the ruler may not accurately reproduce to scale.



MATHEMATICS

MULTIPLE-CHOICE ITEMS

Note: All percentages listed in the tables below the items have been rounded.

A.1.1.3

1. There are 625 pencils in a box. Which expression is equivalent to the number of pencils?

- A 6×5^2 *wrote numbers in order; $6 \times 25 = 625$*
- B 5×2^2 *confused 5×4 with 5^4*
- C 5^4 *
- D 4^5 *reversed base and exponent*

A	B	C	D
20%	4%	73%	2%

A.1.2.1

Use the set of numbers below to answer question 2.

3.01, 3.1, 3.001, 3.11, 3.011

2. What is the order of the numbers from least to greatest?

- A 3.001, 3.01, 3.011, 3.1, 3.11 *
- B 3.1, 3.01, 3.11, 3.001, 3.011
- C 3.001, 3.011, 3.01, 3.11, 3.1
- D 3.11, 3.011, 3.1, 3.01, 3.001

A	B	C	D
51%	25%	20%	4%

A.1.3.2

3. What is the least common denominator of $\frac{5}{8}$ and $\frac{5}{6}$?

- A 2
- B 14
- C 24
- D 48

found the Greatest Common Factor (GCF)

added the two denominators

*

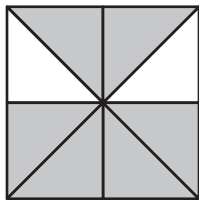
multiplied 8 and 6

A	B	C	D
20%	6%	63%	10%

MATHEMATICS

A.1.4.1

4. The square below has 8 equal parts.



What percent of the square is shaded?

- A 20% 2 not shaded
- B 25% percent unshaded
- C 60% 6 parts shaded
- D 75% *

A	B	C	D
4%	6%	26%	64%

A.3.2.1

5. Meg has 4 ounces of blue paint, $2\frac{1}{2}$ ounces of yellow, 3 ounces of green, and $1\frac{1}{2}$ ounces of orange paint. What is the total number of ounces of paint that Meg has?

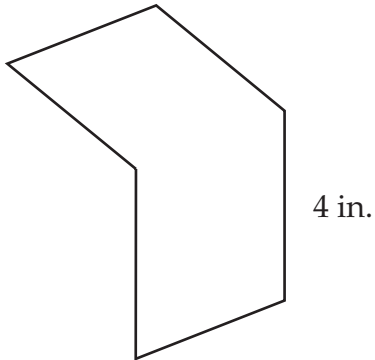
- A 3 added whole numbers (3 + 4) and then subtracted each mixed number
- B $10\frac{1}{2}$ missed one of the 1/2s
- C 11 *
- D $15\frac{1}{2}$ $4 \times 3 = 12$, then added 2 and 1-1/2

A	B	C	D
3%	10%	84%	3%

MATHEMATICS

B.2.2.1

6. The length of each side of the figure below is 4 inches (in.).



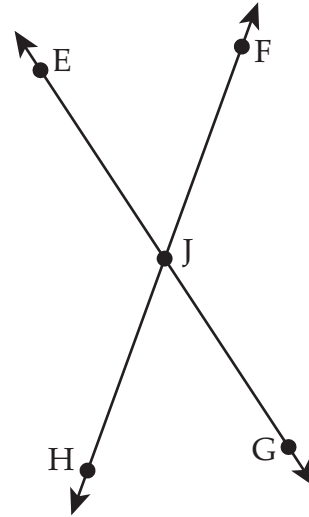
What is the perimeter of the figure?

- A 12 in. *3 × 4; only did perimeter of half of shape*
- B 16 in. *4 × 4; only used diagonal sides*
- C 20 in. *4 × 5; missed one side*
- D 24 in. *

A	B	C	D
2%	7%	6%	84%

B.2.3.1

7. Line EG intersects line FH at point J, as shown below.



What type of angle is $\angle FJG$?

- A acute *it is not less than 90 degrees*
- B obtuse *
- C right *it is not 90 degrees*
- D straight *it is not 180 degrees*

A	B	C	D
7%	85%	3%	5%

MATHEMATICS

C.1.1.1

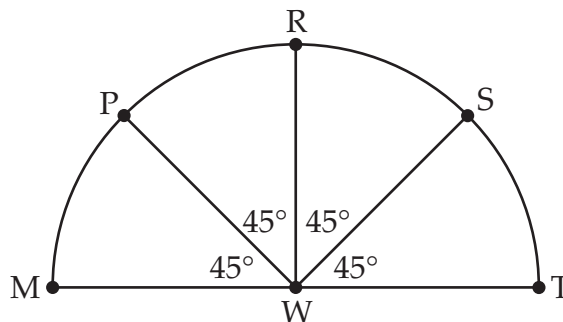
8. What is the name of a polygon with exactly 7 sides?

- A heptagon *
- B nonagon *a polygon with 9 sides*
- C pentagon *a polygon with 5 sides*
- D quadrilateral *a polygon with 4 sides*

A	B	C	D
77%	8%	11%	4%

C.1.2.1

9. The diagram below is in the shape of a half circle.



Which are perpendicular in the diagram?

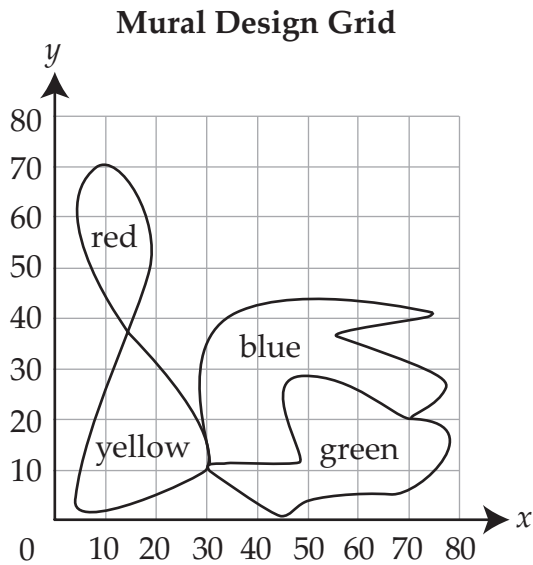
- A \overline{WM} and \overline{WS} *they intersect at 135 degrees*
- B \overline{WM} and \overline{WT} *they intersect at 180 degrees*
- C \overline{WP} and \overline{WR} *they intersect at 45 degrees*
- D \overline{WP} and \overline{WS} *

A	B	C	D
9%	23%	16%	52%

MATHEMATICS

C.3.1.1

10. An artist is using a coordinate grid to design a mural. The design is shown below.



Which color should the artist use at point (63, 12)?

- A blue thought y-coordinate was greater
- B green *
- C red reversed coordinates
- D yellow only used the y-coordinate

A	B	C	D
2%	81%	14%	3%

D.1.1.1

11. A grocery store sells brown sugar by the pound. The table below shows how many cups of sugar a customer will get for the number of pounds purchased.

Brown Sugar

Number of Pounds	Number of Cups
3	7
4	$9\frac{1}{3}$
5	$11\frac{2}{3}$
6	14

The pattern continues. What is the total number of cups of brown sugar in a 7-pound package?

- A $15\frac{2}{3}$ only added 1-2/3 instead of 2-1/3
- B $16\frac{1}{3}$ *
- C $16\frac{2}{3}$ added extra 1/3
- D $17\frac{1}{3}$ added extra whole cup

A	B	C	D
8%	68%	8%	17%

MATHEMATICS

D.1.2.1

12. The relationship between input and output forms a pattern, as shown in the table below.

Input	Output
2	1
4	5
6	9
8	13

Which rule describes the pattern in the table?

- A multiply the input number by 2 then subtract 3
*

- B multiply the input number by 2 then subtract 1

subtracted the wrong number

- C subtract 1 from the input number

works for (2, 1) only

- D subtract 5 from the input number

only works for reverse of (8, 13)

A	B	C	D
79%	12%	6%	2%

D.2.2.1

13. Logan earns \$0.25 for each pen he sells. Which expression describes the total amount of money Logan earns for selling p pens?

A $0.25 \times p$ *

B $0.25 \div p$

C $0.25 + p$

D $0.25 - p$

A	B	C	D
71%	4%	23%	3%

MATHEMATICS

E.1.1.2

14. The number of hours Kent worked at his job during each of 20 weeks is listed below.

4 8 12 14 16 16 18 20 22 24
24 24 26 28 29 30 32 36 36 40

Which frequency table displays the data?

A **Kent's Work Hours**

Number of Hours Worked in a Week	Frequency
1-10	2
11-20	6
21-30	8
31-40	4

*

B **Kent's Work Hours**

Number of Hours Worked in a Week	Frequency
1-10	2
11-20	5
21-30	9
31-40	4

counted intervals (11-19, 20-30)

C **Kent's Work Hours**

Number of Hours Worked in a Week	Frequency
1-10	2
11-20	5
21-30	8
31-40	5

counted intervals (0-9, 10-19, 20-29, 30-40)

D **Kent's Work Hours**

Number of Hours Worked in a Week	Frequency
1-10	2
11-20	6
21-30	9
31-40	5

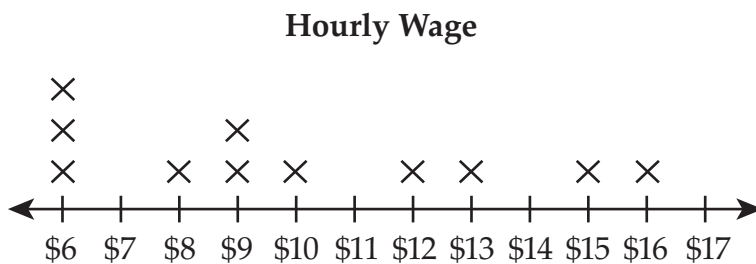
counted intervals (11-20, 20-30, 30-40)

A	B	C	D
65%	13%	11%	11%

MATHEMATICS

E.2.1.1

15. The hourly wage for each of 11 employees is shown in the line plot below.



What is the **mean** of the hourly wages?

- A \$ 6 *mode*
- B \$ 9 *median*
- C \$10 *
- D \$11 *divided by 10 instead of 11*

A	B	C	D
13%	11%	52%	23%

MATHEMATICS

E.3.1.1

16. Josette is starting a puzzle. The puzzle has

15 red,
12 blue,
10 yellow,
7 orange, and
6 green pieces.

Josette randomly selects 1 puzzle piece.
What is the probability that the puzzle
piece she selects is green?

- A $\frac{1}{50}$
- B $\frac{3}{25}$ *
- C $\frac{3}{22}$
- D $\frac{1}{5}$

A	B	C	D
28%	61%	4%	7%

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INTENTIONALLY BLANK.**

MATHEMATICS

OPEN-ENDED ITEM

A.1

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B.** What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

Score Point 4	Score Point 3	Score Point 2	Score Point 1	Score Point 0
14%	16%	35%	19%	16%

MATHEMATICS

ITEM-SPECIFIC SCORING GUIDELINE

Item #17

This item is reported under Category A, Numbers and Operations.

Assessment Anchor:

A.1– Demonstrate an understanding of numbers, ways of representing numbers, relationships among numbers, and number systems.

Specific Eligible Content addressed by this item:

A.1.1.4– Represent a mixed number as an improper fraction.

A.1.3.1– Find the Greatest Common Factor (GCF) of two numbers (through 50) and/or use the GCF to simplify fractions.

Scoring Guide:

Score	In response to this item, the student—
4	demonstrates a <i>thorough</i> understanding of representing a mixed number as an improper fraction and finding the GCF of two numbers by correctly solving problems and clearly explaining procedures.
3	demonstrates a <i>general</i> understanding of representing a mixed number as an improper fraction and finding the GCF of two numbers by clearly explaining procedures with only minor errors or omissions.
2	demonstrates a <i>partial</i> understanding of representing a mixed number as an improper fraction and finding the GCF of two numbers by correctly performing a significant portion of the required task.
1	demonstrates <i>minimal</i> understanding of representing a mixed number as an improper fraction and finding the GCF of two numbers.
0	The response has no correct answer and <i>insufficient</i> 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-scorable	BLK – Blank, entirely erased, or written refusal to respond OT – Off Task IL – Illegible LOE – Response in a language other than English

MATHEMATICS

Item #17

Top Scoring Response:

Part A Answer	Support
7 (times)	$2 \times 3 + 1 = 7$ OR Each cup contains three $\frac{1}{3}$ cups. So two cups have 6 one-third cups. Six plus another $\frac{1}{3}$ cup equals 7.

(2 score points)

1 point for correct answer

1 point for complete support (.5 points for correct, but incomplete, support)

Part B Answer	Support
14 (cookies)	Factors of 42: 1, 2, 3, 6, 7, 14, 21, 42 Factors of 28: 1, 2, 4, 7, 14, 28 Greatest Common Factor = 14 OR $42 = 7 \cdot 6 = \underline{7} \cdot \underline{2} \cdot 3$ $28 = 7 \cdot 4 = \underline{7} \cdot \underline{2} \cdot 2$ $\underline{7} \cdot \underline{2} = 14$ OR Since she put the same number of cookies in each bag, I found the greatest common factor of 42 and 28. I listed the factors of each of these numbers and found 14 to be the greatest.

(2 score points)

1 point for correct answer

1 point for complete support (.5 points for correct, but incomplete, support)

MATHEMATICS

OPEN-ENDED ITEM RESPONSES

A.1 Response Score: 4

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

$$\begin{array}{ccccccc} & \text{1 cup} & & & \text{1 cup} & & \\ \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1 & & \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1 & & & & 1c. + 1c. = 2c. \\ \textcircled{1} & \textcircled{2} & \textcircled{3} & \textcircled{4} & \textcircled{5} & \textcircled{6} & \end{array}$$

$$2c. + \frac{1}{3} = 2\frac{1}{3}c. \\ \textcircled{7}$$

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

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

$$\begin{array}{l} 42) \ 1, 2, 3, 6, 7, 14, 21, 42 \\ 28) \ 1, 2, 4, 7, 14, 28 \end{array}$$

14 in each bag

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

MATHEMATICS

A.1 Response Score: 3

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

7 times $2\frac{1}{3}$
 $\frac{1}{3}$

explain
You take
 $2\frac{1}{3}$ and divide
it by $\frac{1}{3}$ and get 7.

$2\frac{1}{3} \div$

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

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

14

$$\begin{array}{r|l} 42 & 28 \\ \hline 21 & 14 \\ 14 & \end{array}$$

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

MATHEMATICS

A.1 Response Score: 3

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

$2\frac{1}{3}$ cups of flour call for $\frac{1}{3}$ of
a cup

$$\overset{\text{1 once}}{\frac{1}{3}} + \overset{\text{1 twice}}{\frac{1}{3}} = \frac{2}{3} + \overset{\text{1 third}}{\frac{1}{3}} = 1 + \overset{\text{1 fourth}}{\frac{1}{3}} = 1\frac{1}{3} + \overset{\text{1 fifth}}{\frac{1}{3}} = 1\frac{2}{3} + \overset{\text{1 sixth}}{\frac{1}{3}} = 2 + \overset{\text{1 seventh}}{\frac{1}{3}} = 2\frac{1}{3}$$

Theresa would have to use 7 cups
of her $\frac{1}{3}$ of a cup.

$$7 \times \frac{1}{3} = 2\frac{1}{3}$$

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

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

C.C. O.C.
42 28

$$22 + 22 = 44$$

$$21 + 21 = 42$$

14 because if each bag has to contain the same thing that's the only number

$$\begin{array}{r} 14 \\ 14 \\ 14 \\ \hline 42 \end{array}$$

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

MATHEMATICS

A.1 Response Score: 2

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

$$2\frac{1}{3} \div \frac{1}{3}$$
$$\frac{7}{3} \times \frac{3}{1} = \frac{7}{1} = 7$$

Theresa should fill her cup 7 times. I divided $2\frac{1}{3}$ by $\frac{1}{3}$. First I wrote the problem then changed the mixed number to an improper fraction I recipricaled $\frac{1}{3}$ to $\frac{3}{1}$ then reduced the numerator and the denominator that was a three to a 1. then I multiplied and got $\frac{7}{1}$ and reduced it and my reduced number was 7.

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

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

$$\begin{array}{r} 42 \\ + 1 \\ \hline 43 \end{array} \quad \text{or} \quad \begin{array}{r} 28 \\ + 1 \\ \hline 29 \end{array}$$

She could have 43 at the most because if you put all chocolate chips in one bag with 1 oatmeal it would be 43 cookies, I added 42 plus 1 and got 43 and I added 28 plus 1 and I got 29 but 43 was bigger so that was the answer.

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

MATHEMATICS

A.1 Response Score: 2

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

$$\frac{7}{3} =$$


A hand-drawn number line with seven circles representing fractions: $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$, $\frac{4}{3}$, $\frac{5}{3}$, $\frac{6}{3}$, and $\frac{7}{3}$. Above the circles, the student has written the following values: 1 above $\frac{3}{3}$, $1\frac{1}{3}$ above $\frac{4}{3}$, $1\frac{2}{3}$ above $\frac{5}{3}$, 2 above $\frac{6}{3}$, and $2\frac{1}{3}$ above $\frac{7}{3}$. The circles for $\frac{6}{3}$ and $\frac{7}{3}$ are circled together.

7 cups of flour

$$\frac{1}{3} = 1 \text{ cup}$$

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

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

$$\begin{array}{r} 6 \\ 7 \overline{)42} \\ \underline{-42} \\ 0 \end{array}$$

$$\begin{array}{r} 4 \\ 7 \overline{)28} \\ \underline{-28} \\ 0 \end{array}$$

7 cookies in each bag.

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

MATHEMATICS

A.1 Response Score: 1

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

$$\frac{3}{3} = 1 \text{ whole}$$

Three $\frac{1}{3}$ cups toget 1 whole cup

$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 2 \text{ whole cups}$$

$2\frac{1}{3}$ cups of flour

one more
 $\frac{1}{3}$ of a cup

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

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

$$\begin{array}{r} + 14 \\ 14 \\ \hline 28 \\ + 14 \\ \hline 42 \end{array}$$

Common factor for both is 1, 2, (12)
↑
greatest common factor

12 cookies
in each bag

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

MATHEMATICS

A.1 Response Score: 1

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

Theresa should fill the cup 3 times.

$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3} + \frac{1}{3} = \frac{3}{3} = 1$$

The student has given an incorrect answer.
The student has shown correct, but incomplete, support (receiving $\frac{1}{2}$ a point).

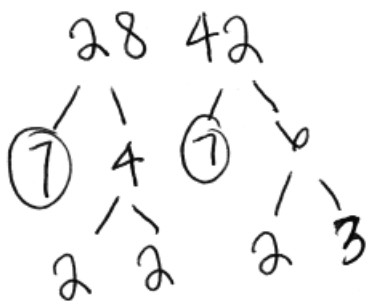
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MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.



I did get the GCF for the two numbers and got 7 cookies per bag.

The student has given an incorrect answer. The student has shown correct, but incomplete, support (receiving $\frac{1}{2}$ a point).

MATHEMATICS

A.1 Response Score: 0

17. Theresa is making cookies.

- A. The recipe Theresa is using calls for $2\frac{1}{3}$ cups of flour. She only has a container that holds $\frac{1}{3}$ of a cup. How many times should she fill the container with flour? Show or explain all your work.

$$\begin{array}{r} 2\frac{1}{3} \\ \frac{1}{3} \\ \hline 2 + \frac{2}{3} \quad \frac{8}{3} \\ \times 3 \end{array}$$

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

GO TO THE NEXT PAGE TO FINISH THE QUESTION.

MATHEMATICS

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

Theresa made 42 chocolate chip cookies and 28 oatmeal cookies. She put all of the cookies into bags. She filled each bag with only chocolate chip cookies or only oatmeal cookies. Each bag contains the same number of cookies.

- B. What is the **greatest** number of cookies Theresa could have put into each bag? Show or explain all your work.

$$\begin{array}{r} 42 \\ + 28 \\ \hline 70 \end{array}$$

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

MATHEMATICS

SUMMATIVE DATA TABLE

Multiple-Choice Items

Sampler Sequence	A	B	C	D
1	20%	4%	73%	2%
2	51%	25%	20%	4%
3	20%	6%	63%	10%
4	4%	6%	26%	64%
5	3%	10%	84%	3%
6	2%	7%	6%	84%
7	7%	85%	3%	5%
8	77%	8%	11%	4%
9	9%	23%	16%	52%
10	2%	81%	14%	3%
11	8%	68%	8%	17%
12	79%	12%	6%	2%
13	71%	4%	23%	3%
14	65%	13%	11%	11%
15	13%	11%	52%	23%
16	28%	61%	4%	7%

Open-Ended Item

Sampler Sequence	Score Point 4	Score Point 3	Score Point 2	Score Point 1	Score Point 0
17	14%	16%	35%	19%	16%

Mathematics
Grade 6
Item and Scoring Sampler Supplement

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