

Name: \_\_\_\_\_



# New York State *Testing Program*

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## 2023 Mathematics Test Session 1

Grade **3**

May 2–4, 2023

**RELEASED QUESTIONS**

# Session 1



## TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

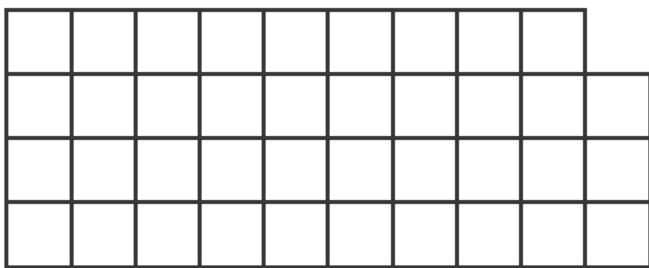
- Read each question carefully and think about the answer before making your choice.
- You have been provided with a ruler to use during the test. Use the ruler whenever you think it will help you to answer the question.

**1** What factor makes the equation below true?

$$8 \times \underline{?} = 72$$

- A 6
- B 7
- C 8
- D 9

**2** The figure shown below is made of unit squares.



KEY	
<input type="checkbox"/>	= 1 square unit

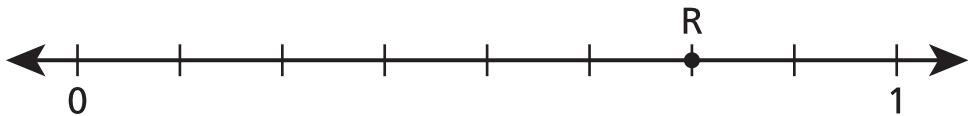
What is the area, in square units, of the figure?

- A 23
- B 26
- C 32
- D 39

**GO ON**

**5**

Point R is shown on the number line below.



Which two fractions are equivalent to the value represented by point R?

- A  $\frac{1}{4}$  and  $\frac{2}{8}$
- B  $\frac{2}{4}$  and  $\frac{6}{8}$
- C  $\frac{2}{4}$  and  $\frac{4}{8}$
- D  $\frac{3}{4}$  and  $\frac{6}{8}$

**6**

Madeline has exactly 7 coins in a bag. Each coin has a mass of 5 grams. What is the total mass, in grams, of all the coins in Madeline's bag?

- A 2
- B 12
- C 35
- D 40

**GO ON**

**15**

A rule was used to create the number pattern shown below.

\_\_\_\_\_, 9, \_\_\_\_\_, 21, 27

What two numbers are missing from the pattern?

A 3 and 12

B 3 and 15

C 6 and 12

D 6 and 15

**16**

Which fraction is equivalent to  $\frac{4}{4}$ ?

A  $\frac{2}{1}$

B  $\frac{2}{2}$

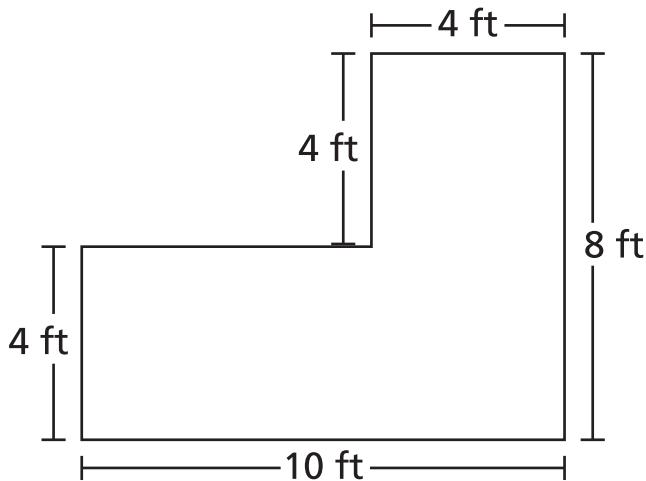
C  $\frac{4}{1}$

D  $\frac{4}{2}$

**GO ON**

**18**

The shape shown below was created by combining two rectangles.



What is the area, in square feet, of the shape?

- A** 36
- B** 40
- C** 56
- D** 80

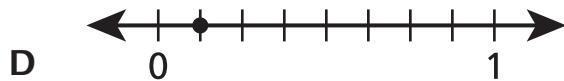
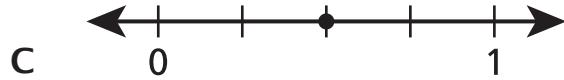
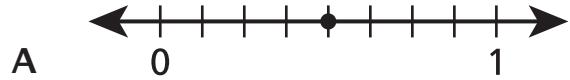
**19**

Which expression is equivalent to  $4 \times (3 \times 2)$ ?

- A**  $2 + (3 + 4)$
- B**  $3 \times (4 \times 2)$
- C**  $2 \times (4 + 3)$
- D**  $3 + (2 \times 4)$

**GO ON**

- 20** Which number line shows a point located at  $\frac{1}{4}$ ?



**GO ON**

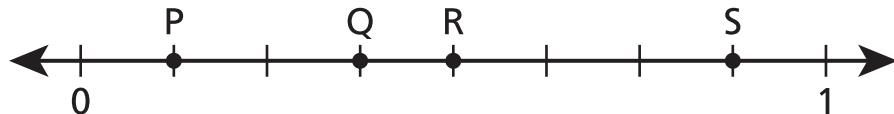
**23**

How many unit squares are needed to find the area of a rectangle that is 48 square units?

- A 6
- B 8
- C 24
- D 48

**24**

Which point on the number line shown below represents the fraction  $\frac{4}{8}$  ?



- A point P
- B point Q
- C point R
- D point S

**STOP**

# Session 2



## TIPS FOR TAKING THE TEST

Here are some suggestions to help you do your best:

- Read each question carefully and think about the answer before making your choice or writing your response.
- You have been provided with a ruler to use during the test. Use the ruler whenever you think it will help you to answer the question.
- Be sure to show your work when asked.

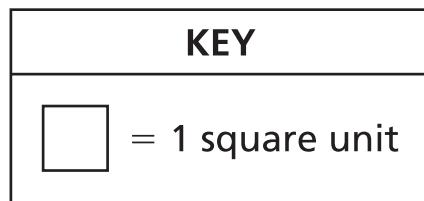
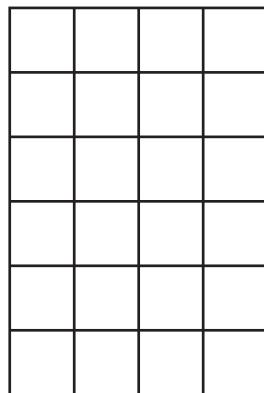
**26**

A student has 27 cupcakes in a box. There are 10 cupcakes with chocolate frosting and 11 cupcakes with vanilla frosting. The remaining cupcakes,  $s$ , have strawberry frosting. What is the value of  $s$ ?

- A** 6
- B** 8
- C** 17
- D** 21

**27**

The area of the rectangle shown below can be found by using unit squares.



What is the area, in square units, of the rectangle?

- A** 10
- B** 18
- C** 20
- D** 24

**GO ON**

**28**

Mr. Juarez buys 5 packs of notebooks. Each pack has 6 notebooks. He gives an equal number of notebooks to each of his 3 children. How many notebooks does each child get?

- A 8
- B 10
- C 11
- D 14

**29**

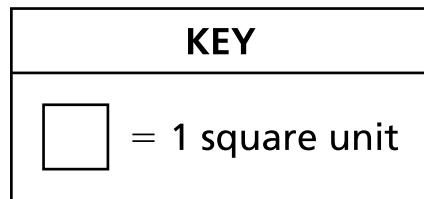
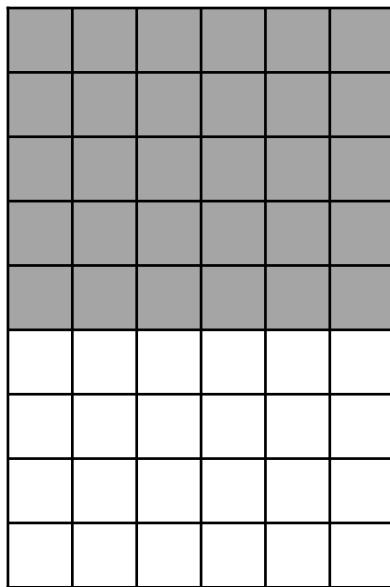
Which fraction is equivalent to  $\frac{2}{8}$ ?

- A  $\frac{1}{4}$
- B  $\frac{1}{6}$
- C  $\frac{2}{4}$
- D  $\frac{2}{6}$

**GO ON**

**30**

A shaded array and an unshaded array are combined to create the picture shown below.



Which expression can be used to find the total area, in square units, of the entire picture?

- A**  $(5 \times 6) + (4 \times 6)$
- B**  $6 + 5 + 4$
- C**  $(5 \times 6) \times (4 \times 6)$
- D**  $6 \times 5 \times 4$

**GO ON**

**31**

**This question is worth 1 credit.**

How many groups of 9 are in 72 ?

*Answer* \_\_\_\_\_

**GO ON**

**32**

**This question is worth 1 credit.**

A circle is cut into 8 equal-sized parts. What fraction of the circle is each part?

**Answer** \_\_\_\_\_ of the circle

**GO ON**

**33**

**This question is worth 1 credit.**

A square has side lengths of 3 feet. What is the area, in square feet, of the square?

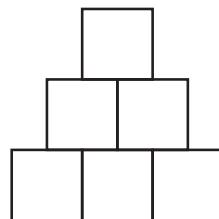
*Answer* \_\_\_\_\_ square feet

**GO ON**

**34**

**This question is worth 2 credits.**

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

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**GO ON**

**35**

**This question is worth 2 credits.**

The beginning of a number pattern is shown below.

6, 10, 14, 18, . . .

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer.

***Explain how you know your answer is correct.***

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**GO ON**

**36**

**This question is worth 2 credits.**

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

**Show your work.**

**Answer** \_\_\_\_\_ p.m.

**GO ON**

**37**

This question is worth 2 credits.

Four digits are listed below.

2

8

5

3

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote.

*Explain how you know your answer is correct.*

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**GO ON**

**38**

**This question is worth 3 credits.**

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate

more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$

and what you know about fractions or parts of a whole in your answer.

***Explain your answer.***

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**STOP**

**THE STATE EDUCATION DEPARTMENT**  
**THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234**  
**2023 Mathematics Tests Map to the Standards**  
**Grade 3 Released Questions**

Question	Type	Key	Points	Standard	Cluster	Secondary Standard(s)	Multiple Choice Questions	Constructed Response Questions	
							Percentage of Students Who Answered Correctly (P-Value)	Average Points Earned	P-Value (Average Points Earned ÷ Total Possible Points)
<b>Session 1</b>									
1	Multiple Choice	D	1	NGLS.Math.Content.NY-3.OA.4	Operations and Algebraic Thinking		0.8066		
2	Multiple Choice	D	1	NGLS.Math.Content.NY-3.MD.6	Measurement and Data		0.8740		
5	Multiple Choice	D	1	NGLS.Math.Content.NY-3.NF.3a	Number and Operations - Fractions	NGLS.Math.Content.NY-3.NF.2b	0.5314		
6	Multiple Choice	C	1	NGLS.Math.Content.NY-3.MD.2b	Measurement and Data		0.8468		
15	Multiple Choice	B	1	NGLS.Math.Content.NY-3.OA.9	Operations and Algebraic Thinking		0.3231		
16	Multiple Choice	B	1	NGLS.Math.Content.NY-3.NF.3c	Number and Operations - Fractions	NGLS.Math.Content.NY-3.NF.3b	0.7220		
18	Multiple Choice	C	1	NGLS.Math.Content.NY-3.MD.7d	Measurement and Data		0.4523		
19	Multiple Choice	B	1	NGLS.Math.Content.NY-3.OA.5	Operations and Algebraic Thinking		0.7618		
20	Multiple Choice	B	1	NGLS.Math.Content.NY-3.NF.2a	Number and Operations - Fractions		0.7512		
23	Multiple Choice	D	1	NGLS.Math.Content.NY-3.MD.5a	Measurement and Data	NGLS.Math.Content.NY-3.MD.5b	0.4650		
24	Multiple Choice	C	1	NGLS.Math.Content.NY-3.NF.2b	Number and Operations - Fractions		0.7734		
<b>Session 2</b>									
26	Multiple Choice	A	1	NGLS.Math.Content.NY-3.OA.8a	Operations and Algebraic Thinking		0.5181		
27	Multiple Choice	D	1	NGLS.Math.Content.NY-3.MD.5b	Measurement and Data	NGLS.Math.Content.NY-3.MD.7a	0.9002		
28	Multiple Choice	B	1	NGLS.Math.Content.NY-3.OA.3	Operations and Algebraic Thinking		0.5851		
29	Multiple Choice	A	1	NGLS.Math.Content.NY-3.NF.3b	Number and Operations - Fractions		0.4934		
30	Multiple Choice	A	1	NGLS.Math.Content.NY-3.MD.7c	Measurement and Data		0.6866		
31	Constructed Response		1	NGLS.Math.Content.NY-3.OA.2	Operations and Algebraic Thinking			0.6409	0.6409
32	Constructed Response		1	NGLS.Math.Content.NY-3.G.2	Geometry			0.6069	0.6069
33	Constructed Response		1	NGLS.Math.Content.NY-3.MD.7b	Measurement and Data	NGLS.Math.Content.NY-3.MD.5a		0.2747	0.2747
34	Constructed Response		2	NGLS.Math.Content.NY-3.G.2	Geometry			0.4023	0.2012
35	Constructed Response		2	NGLS.Math.Content.NY-3.OA.9	Operations and Algebraic Thinking			0.3749	0.1875
36	Constructed Response		2	NGLS.Math.Content.NY-3.MD.1	Measurement and Data			0.5320	0.2660
37	Constructed Response		2	NGLS.Math.Content.NY-3.NBT.4a	Number and Operations in Base Ten			0.3255	0.1628
38	Constructed Response		3	NGLS.Math.Content.NY-3.NF.3d	Number and Operations - Fractions			0.3579	0.1193

\*This item map is intended to identify the primary analytic skills necessary to successfully answer each question. However, some questions measure proficiencies described in multiple standards, including a balanced combination of procedural and conceptual understanding.

**1-Credit Constructed-Response Rubric**

<b>1 Credit</b>	A 1-credit response is a <b>correct answer</b> to the question which indicates a thorough understanding of mathematical concepts and/or procedures.
<b>0 Credits*</b>	A 0-credit response is incorrect, irrelevant, or incoherent.

\* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

**2-Credit Constructed-Response Holistic Rubric**

<b>2 Credits</b>	<p>A 2-credit response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"><li>• indicates that the student has completed the task correctly, using mathematically sound procedures</li><li>• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures</li><li>• may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding</li></ul>
<b>1 Credit</b>	<p>A 1-credit response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"><li>• correctly addresses only some elements of the task</li><li>• may contain an incorrect solution but applies a mathematically appropriate process</li><li>• may contain the correct solution but required work is incomplete</li></ul>
<b>0 Credits*</b>	<p>A 0-credit response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</p>

\* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

### 3-Credit Constructed-Response Holistic Rubric

<b>3 Credits</b>	<p>A 3-credit response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>• indicates that the student has completed the task correctly, using mathematically sound procedures</li> <li>• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures</li> <li>• may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding</li> </ul>
<b>2 Credits</b>	<p>A 2-credit response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>• appropriately addresses most but not all aspects of the task using mathematically sound procedures</li> <li>• may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations</li> <li>• may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures</li> </ul>
<b>1 Credit</b>	<p>A 1-credit response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.</p> <p>This response</p> <ul style="list-style-type: none"> <li>• may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete</li> <li>• exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning</li> <li>• reflects a lack of essential understanding of the underlying mathematical concepts</li> <li>• may contain the correct solution(s) but required work is limited</li> </ul>
<b>0 Credits*</b>	<p>A 0-credit response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.</p>

\* Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted).

**31**

How many groups of 9 are in 72?

*Answer* \_\_\_\_\_

## EXEMPLARY RESPONSE

31

How many groups of 9 are in 72?

*Answer* 8 or equivalent answer

# GUIDE PAPER 1

31

How many groups of 9 are in 72? [1]

$$\begin{array}{r} 9 \\ \times 8 \\ \hline 72 \end{array} \quad \begin{array}{r} 72 \\ \div 9 \\ \hline 8 \end{array}$$

Answer \_\_\_\_\_

**Score Point 1 (out of 1 credit)**

A correct answer is provided.

## GUIDE PAPER 2

31

How many groups of 9 are in 72?

9	18	27	36
45	54	63	72
1	2	3	4
5	6	7	8
(8)			

*Answer*

**Score Point 1 (out of 1 credit)**

A correct answer is provided.

## GUIDE PAPER 3

31

How many groups of 9 are in 72? [1]



Answer 72

**Score Point 0 (out of 1 credit)**

An incorrect answer is provided.

32

A circle is cut into 8 equal-sized parts. What fraction of the circle is each part?

*Answer* \_\_\_\_\_ of the circle

## EXEMPLARY RESPONSE

32

A circle is cut into 8 equal-sized parts. What fraction of the circle is each part?

*Answer* \_\_\_\_\_  $\frac{1}{8}$  or one eighth or equivalent answer  
of the circle

# GUIDE PAPER 1

32

A circle is cut into 8 equal-sized parts. What fraction of the circle is each part? [1]

Answer  $\frac{1}{8}$  of the circle

**Score Point 1 (out of 1 credit)**

A correct answer is provided.

## GUIDE PAPER 2

32

A circle is cut into 8 equal-sized parts. What fraction of the circle is each part?

*Answer*  of the circle

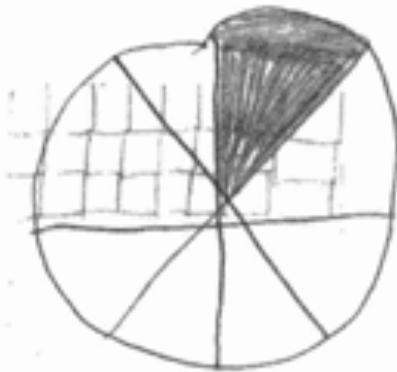
**Score Point 1 (out of 1 credit)**

A correct answer is provided.

## GUIDE PAPER 3

32

A circle is cut into 8 equal-sized parts. What fraction of the circle is each part? [1]



Answer 7 of the circle

**Score Point 0 (out of 1 credit)**

An incorrect answer is provided.

**33**

A square has side lengths of 3 feet. What is the area, in square feet, of the square?

*Answer* \_\_\_\_\_ square feet

## EXEMPLARY RESPONSE

33

A square has side lengths of 3 feet. What is the area, in square feet, of the square?

*Answer* 9 or equivalent answer square feet

# GUIDE PAPER 1

33

A square has side lengths of 3 feet. What is the area, in square feet, of the square? [1]

Answer  square feet

**Score Point 1 (out of 1 credit)**

A correct answer is provided.

## GUIDE PAPER 2

33

A square has side lengths of 3 feet. What is the area, in square feet, of the square?

*Answer*

9 sq ft

square feet

**Score Point 1 (out of 1 credit)**

A correct answer is provided.

## GUIDE PAPER 3

33

A square has side lengths of 3 feet. What is the area, in square feet, of the square?

*Answer*

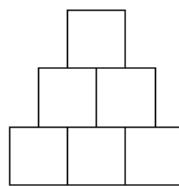
it is 3 feet

square feet

**Score Point 0 (out of 1 credit)**

An incorrect answer is provided.

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

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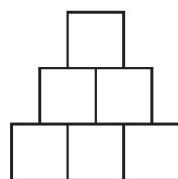
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## EXEMPLARY RESPONSE

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

Each part of the figure is  $\frac{1}{6}$  because there are 6 equal parts.

*or*

Each part of the figure is  $\frac{1}{6}$  because the entire figure is  $\frac{6}{6}$ .

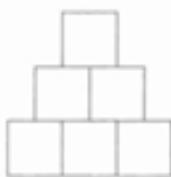
*or other valid explanation*

# GUIDE PAPER 1

Additional

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

t because there are 6 equal parts and if you want to have 1 piece that's called one-sixth,  $\frac{1}{6}$ .



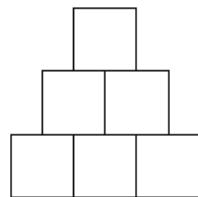
## Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation correctly describes the number of equal parts in the figure and the correct fraction is provided. The explanation is complete and correct.

## GUIDE PAPER 2

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

$\frac{1}{6}$  because there are 3 cubes on the bottom and 2 on the top. Also there is 1 on the very top so  $3+2+1=6$  and since we're doing fractions one piece is  $\frac{1}{6}$



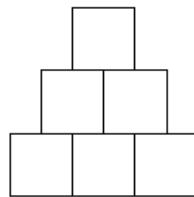
### Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation correctly describes the number of parts in the figure using addition and the correct fraction is provided. The explanation is complete and correct.

# GUIDE PAPER 3

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

$\frac{1}{6}$ , because the shape is split into 6 equal parts

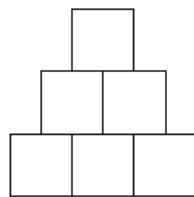
## Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation correctly describes the number of equal parts in the figure and the correct fraction is provided. The explanation is sufficient to show a thorough understanding.

# GUIDE PAPER 4

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

Each figure is  $\frac{1}{6}$ . I know my answer is correct because I counted each square.

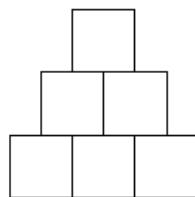
## Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The correct fraction is provided; however, the explanation does not describe the number of parts in the figure. This response correctly addresses only some elements of the task.

# GUIDE PAPER 5

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

$$1/6 + 1/6 + 1/6 + 1/6 + 1/6 + 1/6 = 6/6 = 1 \text{ whole.}$$

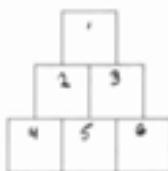
## Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The explanation correctly describes the number of equal parts in the figure using an addition equation; however, the answer is not clearly identified. This response correctly addresses only some elements of the task.

# GUIDE PAPER 6

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

Each one is either 1,2,3,4,5 or 6 and if it is one of those answers the denominator is 6 because I counted all the square's.

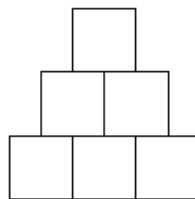
## Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The explanation correctly describes the number of equal parts in the figure; however, the answer is not a fraction. This response correctly addresses only some elements of the task.

# GUIDE PAPER 7

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

$\frac{1}{6}$  I found my answer from the six cubes .

## Score Point 0 (out of 2 credits)

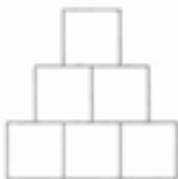
This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect answer is provided, and the explanation does not describe how 6 cubes relates to the figure. Holistically, this response shows no overall understanding.

# GUIDE PAPER 8

Additional

34

The figure shown below is made up of equal parts.



What fraction of the entire figure is each part?

*Explain how you know your answer is correct.*

3 because all of them together  
is 6 and  $3+3=6$  and  
that's how I go my answer.

## Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect answer is obtained from an incorrect procedure. Holistically, this response shows no overall understanding.

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, ...

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer.

*Explain how you know your answer is correct.*

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## EXEMPLARY RESPONSE

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, . . .

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer.

*Explain how you know your answer is correct.*

The 10<sup>th</sup> number in the pattern is an even number and the first 10 numbers in the pattern are 6, 10, 14, 18, 22, 26, 30, 34, 38, and 42.

*or*

The 10<sup>th</sup> number in the pattern is an even number and the pattern rule is to add 4.

*or other valid explanation*

# GUIDE PAPER 1

Additional

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, 22, 26, 30, 34, 38, 42

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer. [2]

*Explain how you know your answer is correct.*

The 10th number in the pattern is even because 42 is even all the other numbers are even to because it is counting by 4's and 4 is even.

## Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation correctly identifies the 10th number in the pattern as an even number and correctly describes the pattern rule using sound procedures. Per Scoring Policy #1 for 2- and 3-credit responses, the work shown in other than a designated “Explain” area should still be scored. The explanation is complete and correct.

## GUIDE PAPER 2

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, ...

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer. [2]

*Explain how you know your answer is correct.*

I know the 10th number it is going to be even because it starts with an even number counts by 4's and 4 is even.

### Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation correctly identifies the 10th number in the pattern as an even number and correctly describes the pattern rule. The explanation is complete and correct.

## GUIDE PAPER 3

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, . . .

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer.

*Explain how you know your answer is correct.*

6,10,14,18,22,26,30,34,38,42

even

### Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The explanation correctly identifies the 10th number in the pattern as an even number and correctly describes the pattern rule by stating the first 10 numbers. The explanation is sufficient to show a thorough understanding.

## GUIDE PAPER 4

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, ...

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer.

*Explain how you know your answer is correct.*

6	10	14	18	22	26	30	34
		38		42			

the answer is 42.

### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. Although the explanation correctly describes the pattern rule by stating the first 10 numbers, whether the 10th number in the pattern is even or odd is not addressed. This response correctly addresses only some elements of the task.

## GUIDE PAPER 5

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, ...

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer. [2]

*Explain how you know your answer is correct.*

Scence 6 is an even number and we added an even number, so it's an even number.

### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The explanation correctly identifies the 10th number in the pattern as an even number; however, the description of the pattern rule is insufficient. This response correctly addresses only some elements of the task.

## GUIDE PAPER 6

35

The beginning of a number pattern is shown below.

6 0 4 8 ...

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer. [2]

Explain how you know your answer is correct.

The 10<sup>th</sup> number is 41 because I saw in the first 4 numbers it was going up by 4s. So, the 10<sup>th</sup> number is 41.

6, 10, 14, 18, 22, 26, 30, 34, 37, 41

### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. An error occurs when describing the pattern rule because  $34 + 4 \neq 37$ . The explanation does not address whether the 10th number in the pattern is even or odd. This response correctly addresses only some elements of the task.

## GUIDE PAPER 7

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, . . .

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer.

*Explain how you know your answer is correct.*

6,10,14,18,22,26,32,38,44,50. The 10th number is odd.

### Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation incorrectly identifies the 10th number in the pattern and incorrectly describes the pattern rule. Holistically, this response shows no overall understanding.

# GUIDE PAPER 8

Additional

35

The beginning of a number pattern is shown below.

6, 10, 14, 18, ...

The pattern continues. Is the 10th number in the pattern an even number or an odd number? Be sure to include the rule used for the pattern in your answer.

*Explain how you know your answer is correct.*

$$18 \times 6 = 42$$

## Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation identifies an incorrect answer using an incorrect procedure. Holistically, this response shows no overall understanding.

**36**

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

*Show your work.*

**Answer** \_\_\_\_\_ p.m.

## EXEMPLARY RESPONSE

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

*Show your work.*

$$5:20 + :45 = 6:05 \text{ pm}$$

$$6:05 + :30 = 6:35 \text{ pm}$$

*or*

$$5:20 + :40 = 6:00 \text{ pm}$$

$$6:00 + :05 + :30 = 6:35 \text{ pm}$$

*or*

$$45 + 30 = 75 = 1:15$$

$$5:20 + 1:15 = 6:35 \text{ pm}$$

*or other valid process*

*Answer* 6:35 p.m.

# GUIDE PAPER 1

Additional

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game? [2]

Show your work.

$$\begin{array}{r} 30 \text{ min} \\ + 45 \text{ min} \\ \hline 75 \text{ min} \end{array}$$

+ 5:20 P.M.  
6:35

OR  
1 hour 15 min

---- = start time  
— = end time



Answer 6:35 p.m.

## Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. The total time spent reading and playing a video game is correctly calculated and correctly added to the start time. The response is complete and correct.

## GUIDE PAPER 2

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

*Show your work.*

$$5:20 + 45 = 6:05 \quad 6:05 + 30 = 6:35$$

*Answer*

6:35 p.m.

p.m.

### Score Point 2 (out of 2 credits)

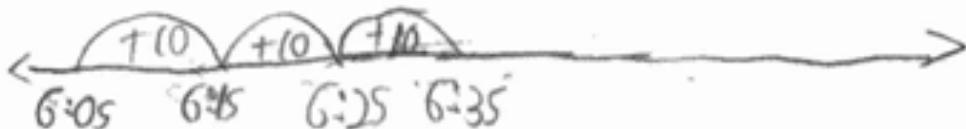
This response demonstrates a thorough understanding of the mathematical concepts in the task. The total time spent reading and playing a video game is correctly calculated and correctly added to the start time. This response is complete and correct.

## GUIDE PAPER 3

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game? [2]

Show your work.



Answer 6:35 p.m.

### Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct process is used to determine the time John stops playing a video game. Although the time spent reading is not shown in the work, this response contains sufficient work to show a thorough understanding.

## GUIDE PAPER 4

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

Show your work.

$$\begin{array}{r} 20 \\ + 45 \\ \hline 65 \end{array} \quad \begin{array}{r} 6:05 \\ + 30 \\ \hline 6:35 \end{array}$$

Answer 6:30 p.m.

### Score Point 1 (out of 2 credits)

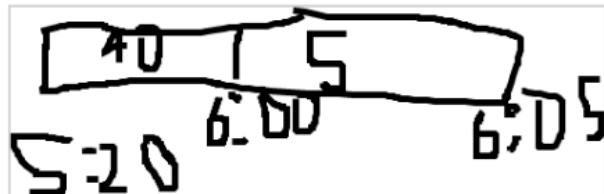
This response demonstrates only a partial understanding of the mathematical concepts in the task. The total time spent reading and playing a video game is correctly calculated and correctly added to the start time; however, an incorrect time is provided as an answer. This response contains an incorrect solution but applies an appropriate process.

## GUIDE PAPER 5

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

Show your work.



Answer  p.m.

### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A correct process is used to determine the time John stops reading a book and that time is inappropriately provided as an answer. This response correctly addresses only some elements of the task.

## GUIDE PAPER 6

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game? [2]

Show your work.

5:20 5      6:00 5  
5:25 10      6:05 10  
5:30 15      6:10 15  
5:35 20      6:15 20  
5:40 25      6:20 25  
5:45 30      6:25 30 mins  
5:50 35  
5:55 40  
6:00 45 mins

Answer 6:25 p.m.

### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The time spent reading a book and playing a video game is determined by skip counting; however, the counting begins at 5 instead of 0 and an incorrect time is provided as an answer. This response correctly addresses only some elements of the task.

## GUIDE PAPER 7

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

*Show your work.*

$$\begin{array}{r} 45 \\ - 30 \\ \hline 25 \end{array}$$

*Answer*

5:40

p.m.

### Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect process is used to obtain an incorrect answer. Holistically, this response shows no overall understanding.

# GUIDE PAPER 8

Additional

36

John starts reading a book at 5:20 p.m. He reads for 45 minutes and then plays a video game for 30 minutes. At what time does John stop playing the video game?

*Show your work.*

John stops playing at 6:35p.m.

Answer    6:35    p.m.

## Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although a correct answer is provided, it is unclear how the answer is obtained. Holistically, this response shows no overall understanding.

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote.

*Explain how you know your answer is correct.*

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## EXEMPLARY RESPONSE

37

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote.

*Explain how you know your answer is correct.*

2,385 has 2 in the thousands place, 3 in the hundreds place, 8 in the tens place, and 5 in the ones place.

*or other valid explanation*

# GUIDE PAPER 1

Additional

37

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote. [2]

*Explain how you know your answer is correct.*

8352 is my number the 8's place is the thousands. The 3's place is the hundreds. The 5's place is the tens place. The 2's place is the ones place.

## Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A four-digit number with the digit 3 in the hundreds place is correctly identified and the place value for each digit is correctly explained. The explanation is complete and correct.

## GUIDE PAPER 2

37

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote.

*Explain how you know your answer is correct.*



### Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A four-digit number with the digit 3 in the hundreds place is correctly identified and the place value for each digit is correctly explained using a place value chart. This explanation is sufficient to show a thorough understanding.

## GUIDE PAPER 3

37

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote.

*Explain how you know your answer is correct.*

The image shows handwritten work. At the top, the number 8352 is written in cursive. Below it, the number is broken down into its expanded form: 8000 + 300 + 50 + 2. An equals sign is placed between the original number and the expanded form, with a large bracket underneath grouping all terms except the plus signs. The entire equation is underlined.

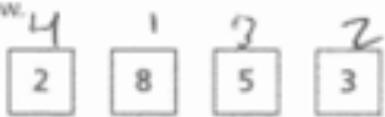
### Score Point 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A four-digit number with the digit 3 in the hundreds place is correctly identified and the place value for each digit is correctly explained by writing the number in expanded form. This explanation is sufficient to show a thorough understanding.

## GUIDE PAPER 4

37

Four digits are listed below.



Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote. [2]

*Explain how you know your answer is correct.*

8,352    8 thousand  
3 hundred 52 ones.

### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A four-digit number with the digit 3 in the hundreds place is correctly identified and the place values for two digits are correctly explained; however, the place values for the tens place and ones place are incorrect. This response correctly addresses only some elements of the task.

## GUIDE PAPER 5

37

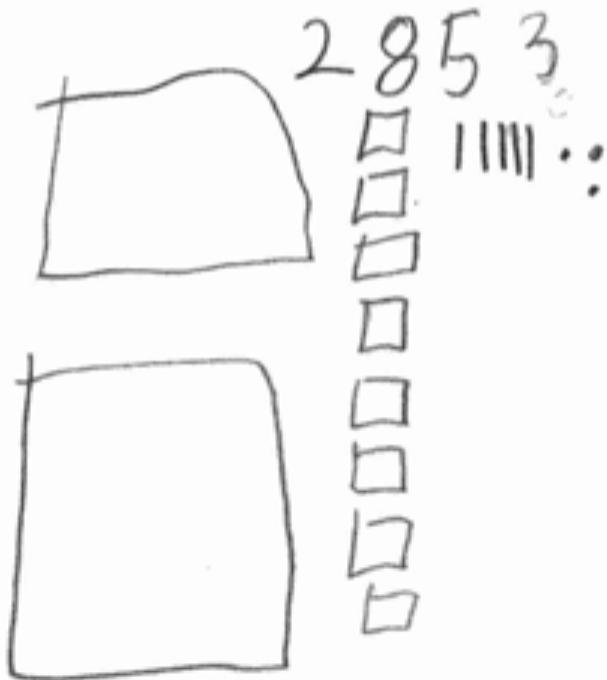
Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote. [2]

*Explain how you know your answer is correct.*

2 is the tens and 8 is the hundreds 5 is the ten and 3 is the ones.



### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. The place value for each digit in a four-digit number is correctly explained; however, the four-digit number does not have the digit 3 in the hundreds place. This response correctly addresses only some elements of the task.

## GUIDE PAPER 6

37

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote.

*Explain how you know your answer is correct.*

8352

thasins hadrids tns oue. The thasins is the biggit and oue are the salllit.

### Score Point 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts in the task. A four-digit number with the digit 3 in the hundreds place is correctly identified. The explanation of place values is insufficient because the place values are not identified with the digits. This response correctly addresses only some elements of the task.

# GUIDE PAPER 7

37

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote.

*Explain how you know your answer is correct.*

3582

## Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although a four-digit number is identified, the digit 3 is not in the hundreds place and the place values are not addressed. Holistically, this response shows no overall understanding.

## GUIDE PAPER 8

Additional

37

Four digits are listed below.

2	8	5	3
---	---	---	---

Use each digit shown to write a four-digit number with the digit 3 in the hundreds place. Then use what you know about place value to identify the place value of each digit in the number you wrote. [2]

*Explain how you know your answer is correct.*

I putc a 8 to goer and I  
putc 53 to goer = 81.

### Score Point 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation is irrelevant. Holistically, this response shows no overall understanding.

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

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## EXEMPLARY RESPONSE

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

George is correct because  $\frac{3}{6} > \frac{2}{6}$ .

If two fractions have the same denominator, the fraction with the larger numerator is the bigger fraction.

*or*

George is correct because  $\frac{2}{6} < \frac{3}{6}$ .

I know 3 parts out of 6 is one more part than 2 parts out of 6.

*or other valid explanation*

# GUIDE PAPER 1

Additional

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

$\frac{2}{6} < \frac{3}{6}$  George ate more because since they have the same denominator you look at the numerator and Georges is bigger so he ate more.

## Score Point 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct claim is chosen, and a correct comparison statement is provided and supported by comparing the numerators and denominators of the fractions. This explanation is complete and correct.

## GUIDE PAPER 2

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate

more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$

and what you know about fractions or parts of a whole in your answer. [3]

*Explain your answer:*

*George ate more because the denominator are the same  
So this is and bigger George  
ate more  $\frac{2}{6} < \frac{3}{6}$  that how I  
know that  $\frac{2}{6}$  George ate more.*

### Score Point 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct claim is chosen, and a correct comparison statement is provided and supported by comparing the numerators and denominators of the fractions. This explanation is complete and correct.

## GUIDE PAPER 3

38

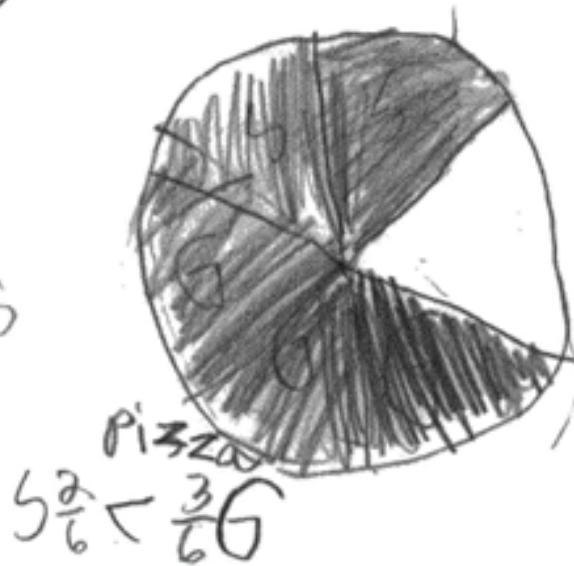
Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer. [3]

*Explain your answer.*

I drew a pizza and then  
read the fraction and shaded  
the slices that Sandra  
ate

George  
ate  
more  
slices  
than  
Sandra



$$\frac{2}{6} < \frac{3}{6}$$

### Score Point 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts in the task. A correct claim is chosen, and a correct comparison statement is provided and supported by using a model to shade the amount of pizza that George and Sandra ate. The explanation is sufficient to show a thorough understanding.

## GUIDE PAPER 4

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

george ate more because the bigger numerater the the bigger  
peice  $\frac{2}{6} < \frac{3}{6}$

### Score Point 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts in the task. A correct claim is chosen, and a correct comparison statement is provided and supported by comparing the numerators of the fractions. However, the denominators of the fractions are not compared. This response appropriately addresses most, but not all, aspects of the task.

## GUIDE PAPER 5

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate

more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$

and what you know about fractions or parts of a whole in your answer. [3]

*Explain your answer.*

George is correct because he ate  $\frac{3}{6}$  Sandra ate  $\frac{2}{6}$  and we all know 3 is bigger than two. and that be one  Much Pizza is more.

### Score Point 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts in the task. A correct claim is chosen, and the slices of pizza George and Sandra ate are correctly compared. However, a comparison statement is not provided. This response appropriately addresses most, but not all, aspects of the task.

## GUIDE PAPER 6

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

George is right because  $\frac{3}{6} > \frac{2}{6}$

### Score Point 2 (out of 3 credits)

This response demonstrates a partial understanding of the mathematical concepts in the task. A correct claim is chosen, and a correct comparison statement is provided. However, a statement about fractions or parts of a whole is not included. This response appropriately addresses most, but not all, aspects of the task.

## GUIDE PAPER 7

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

$$\frac{2}{6} < \frac{3}{6}$$

### Score Point 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts in the task. A correct comparison statement is provided. However, the explanation does not address whose claim is correct and a statement about fractions or parts of a whole is not included. This response addresses some elements of the task correctly but provides reasoning that is incomplete.

# GUIDE PAPER 8

Additional

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

3/6 is bigger cuz its more parts

## Score Point 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts in the task. The explanation includes a correct statement about fractions. However, the explanation does not address whose claim is correct and it does not include a correct comparison statement. This response addresses some elements of the task correctly but provides reasoning that is incomplete.

## GUIDE PAPER 9

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer. [3]

*Explain your answer.*

Sandra Ate  $\frac{2}{6}$  OF A PIZZA  
And George Ate  $\frac{3}{6}$   
George Ate the most

### Score Point 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts in the task. A correct claim is chosen. However, the statement about fractions is not sufficiently explained and a comparison statement is not provided. This response addresses some elements of the task correctly but provides reasoning that is incomplete.

## GUIDE PAPER 10

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer. [3]

*Explain your answer.*

$\frac{2}{6} > \frac{3}{6}$  because  $\frac{2}{6}$  is bigger than  $\frac{3}{6}$   
So the answer is  $\frac{2}{6}$

### Score Point 0 (out of 3 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation includes an incorrect comparison statement contradicted by a correct statement about fractions. Holistically, this response shows no overall understanding.

# GUIDE PAPER 11

Additional

38

Sandra ate  $\frac{2}{6}$  of a pizza and George ate  $\frac{3}{6}$  of the same pizza. Sandra says she ate more of the pizza than George. George says he ate more of the pizza than Sandra.

Who is correct? Be sure to include a correct comparison statement using  $>$ ,  $<$ , or  $=$  and what you know about fractions or parts of a whole in your answer.

*Explain your answer.*

3 x 6 = 18  
2      3  
6      6

## Score Point 0 (out of 3 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation does not sufficiently compare the fractions. Holistically, this response shows no overall understanding.