

# New York NYSTP 2019 Grade 5 Math

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# Grade 5 Mathematics Reference Sheet

## CONVERSIONS

1 mile = 5,280 feet

1 mile = 1,760 yards

1 pound = 16 ounces

1 ton = 2,000 pounds

1 cup = 8 fluid ounces

1 pint = 2 cups

1 quart = 2 pints

1 gallon = 4 quarts

1 liter = 1,000 cubic centimeters

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## FORMULAS

**Right Rectangular Prism**

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$V = Bh$  or  $V = lwh$

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



# New York State *Testing Program*

## 2019 Mathematics Test Session 1

Grade **5**

May 1–3, 2019

RELEASED QUESTIONS

# Session 1



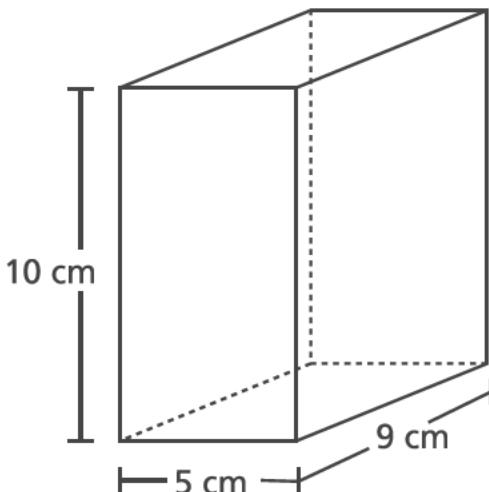
## TIPS FOR TAKING THE TEST

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 mathematics tools (a ruler and a protractor) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.

1

A gift box is in the shape of a right rectangular prism, as pictured below.



What is the volume, in cubic centimeters, of the gift box?

- A 24
- B 45
- C 225
- D 450

2

What is the sum of  $\frac{2}{10} + \frac{6}{100}$ ?

- A  $\frac{8}{10}$
- B  $\frac{8}{100}$
- C  $\frac{26}{10}$
- D  $\frac{26}{100}$

**GO ON**

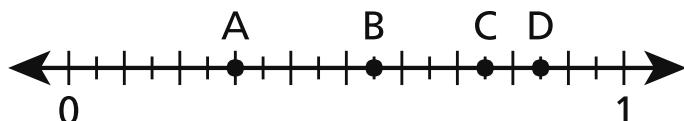
**3**

On Saturday, Mark sold  $2\frac{7}{8}$  gallons of lemonade. On the same day, Regan sold  $\frac{2}{3}$  as much lemonade as Mark. How much lemonade, in gallons, did Regan sell?

- A  $1\frac{5}{16}$
- B  $1\frac{11}{12}$
- C  $2\frac{7}{12}$
- D  $4\frac{5}{16}$

**4**

Which point on the number line below represents a value of 0.75?

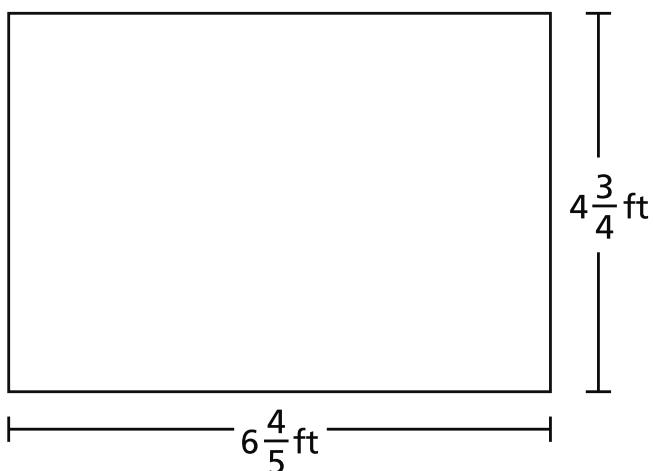


- A point A
- B point B
- C point C
- D point D

**GO ON**

**13**

What is the area, in square feet, of the rectangle shown below?

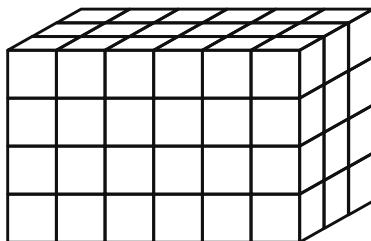


- A**  $11\frac{11}{20}$
- B**  $24\frac{12}{20}$
- C**  $27\frac{4}{20}$
- D**  $32\frac{6}{20}$

**GO ON**

**18**

Which expression **cannot** be used to determine the volume of the rectangular prism pictured below?



- A**  $12 \times 6$
- B**  $18 \times 4$
- C**  $6 \times 3 \times 4$
- D**  $6 \times 4 \times 6$

**19**

What is 15.74 rounded to the nearest whole number?

- A** 10
- B** 15
- C** 16
- D** 20

**GO ON**

- 20** Jack puts  $\frac{1}{3}$  pound of birdseed into his bird feeder every time he fills it. How many times can Jack fill his bird feeder with 4 pounds of birdseed?

A  $1\frac{1}{3}$

B  $3\frac{2}{3}$

C 11

D 12

- 21** Carlos makes 1 pound of snack mix using nuts, raisins, and cereal. The list below shows how many pounds of nuts and raisins he uses.

•  $\frac{1}{3}$  pound of nuts

•  $\frac{2}{5}$  pound of raisins

How much cereal, in pounds, does Carlos use?

A  $\frac{3}{8}$

B  $\frac{5}{8}$

C  $\frac{4}{15}$

D  $\frac{11}{15}$

**GO ON**

- 26** What is the value of the expression  $\frac{1}{7} \div 5$ ?

- A  $\frac{1}{12}$
- B  $\frac{1}{35}$
- C  $\frac{5}{7}$
- D  $\frac{6}{7}$

- 27** Cole has a rectangular garden with an area of 16.02 square meters. The length of the garden is 4.5 meters. What is the width, in meters, of the garden?

- A 3.56
- B 11.52
- C 16.12
- D 20.52

- 28** A school raised a total of \$1,648 to purchase new books. The money raised will be shared equally among 8 different classrooms. What is the total amount of money each classroom will receive?

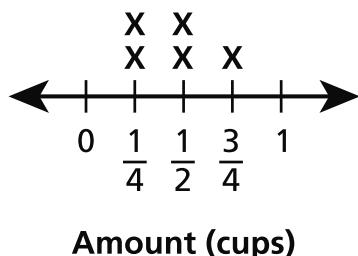
- A \$206
- B \$207
- C \$260
- D \$270

**GO ON**

**29**

The line plot below shows the amount of cereal Shyanne ate in 5 days.

**CEREAL EATEN**



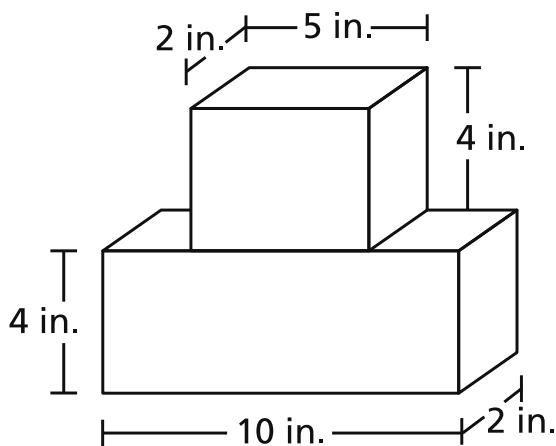
What is the total number of cups of cereal that Shyanne ate in the 5 days?

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

**GO ON**

**30**

Lana used the two blocks pictured in the diagram to build a tower.



**LANA'S TOWER**

What is the total volume, in cubic inches, of the tower Lana built?

- A 27
- B 80
- C 116
- D 120

**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 mathematics tools (a ruler and a protractor) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.
- Be sure to show your work when asked.

**31** Which statement about rectangles and rhombuses is always true?

- A Both figures are squares.
- B Both figures are quadrilaterals.
- C Both figures have four right angles.
- D Both figures have four congruent sides.

**32** What is the value of the expression  $\frac{2}{5} + \frac{3}{7}$ ?

- A  $\frac{5}{35}$
- B  $\frac{6}{35}$
- C  $\frac{5}{12}$
- D  $\frac{29}{35}$

**33** Which measurement is equivalent to 4,000 centimeters?

- A 4 meters
- B 40 meters
- C 400 meters
- D 40,000 meters

**GO ON**

- 34** Zaire is making granola bars. For one batch of bars, the recipe requires  $1\frac{2}{3}$  cups of rolled oats, and  $\frac{1}{2}$  cup raisins. What is the combined amount, in cups, of rolled oats and raisins that is used in one batch of granola bars?

- A  $1\frac{1}{5}$
- B  $1\frac{3}{5}$
- C  $2\frac{1}{3}$
- D  $2\frac{1}{6}$

- 35** In a science class, Paula made a mixture by adding 2.05 milliliters of hydrogen peroxide and 6.15 milliliters of water together. Equal amounts of the whole mixture were poured into 5 empty containers. How much of the mixture, in milliliters, did she pour into each container?

- A 0.61
- B 1.64
- C 3.2
- D 13.4

- 36** What is 482.073 expressed in word form?
- A four eighty-two and seventy-three thousandths
  - B four hundred eighty-two thousand seventy-three
  - C four hundred eighty-two and seventy-three hundredths
  - D four hundred eighty-two and seventy-three thousandths

**GO ON**

**37**

Marco bakes cookies for his class. He uses  $\frac{3}{4}$  cup of butter in each batch of cookies and bakes  $2\frac{1}{2}$  batches. Which equation can be used to determine the number of cups of butter Marco uses to bake cookies?

A  $\frac{5}{2} \times \frac{3}{4} = 1\frac{7}{8}$

B  $\frac{3}{2} \times \frac{3}{4} = 1\frac{1}{8}$

C  $\frac{5}{2} \times \frac{4}{3} = 3\frac{1}{3}$

D  $\frac{3}{2} \times \frac{4}{3} = 2$

**38**

Which expression is **not** equivalent to  $\frac{2}{3} \times 4$ ?

A  $(2 \times 4) \div 3$

B  $\frac{1}{3} \times (2 \times 4)$

C  $\left(4 \times \frac{1}{3}\right) \times 2$

D  $\left(2 \times \frac{1}{3}\right) + \left(4 \times \frac{1}{3}\right)$

**GO ON**

**39**

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

*Show your work.*

*Answer* \_\_\_\_\_ cubic units

**GO ON**

**40**

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

*Show your work.*

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

**GO ON**

**41**

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

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**GO ON**

**42**

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

*Show your work.*

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

**GO ON**

**43**

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

*Show your work.*

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

**GO ON**

**44**

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5 ?

*Explain your answer.*

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**GO ON**

**45**

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

*Show your work.*

**Answer** Portion B \_\_\_\_\_ ounces

Portion C \_\_\_\_\_ ounces

**STOP**

**THE STATE EDUCATION DEPARTMENT**  
**THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234**  
**2019 Mathematics Tests Map to the Standards**  
**Grade 5 Released Questions on EngageNY**

Question	Type	Key	Points	Standard	Cluster	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	CCSS.Math.Content.5.MD.C.5b	Measurement and Data	0.86		
2	Multiple Choice	D	1	CCSS.Math.Content.4.NF.C.5	Number and Operations - Fractions	0.68		
3	Multiple Choice	B	1	CCSS.Math.Content.5.NF.B.6	Number and Operations - Fractions	0.39		
4	Multiple Choice	C	1	CCSS.Math.Content.4.NF.C.6	Number and Operations in Base Ten	0.69		
13	Multiple Choice	D	1	CCSS.Math.Content.5.NF.B.4b	Number and Operations - Fractions	0.35		
18	Multiple Choice	D	1	CCSS.Math.Content.5.MD.C.5a	Measurement and Data	0.61		
19	Multiple Choice	C	1	CCSS.Math.Content.5.NBT.A.4	Number and Operations in Base Ten	0.74		
20	Multiple Choice	D	1	CCSS.Math.Content.5.NF.B.7c	Number and Operations - Fractions	0.53		
21	Multiple Choice	C	1	CCSS.Math.Content.5.NF.A.2	Number and Operations - Fractions	0.48		
26	Multiple Choice	B	1	CCSS.Math.Content.5.NF.B.7a	Number and Operations - Fractions	0.7		
27	Multiple Choice	A	1	CCSS.Math.Content.5.NBT.B.7	Number and Operations in Base Ten	0.4		
28	Multiple Choice	A	1	CCSS.Math.Content.5.NBT.B.6	Number and Operations in Base Ten	0.77		
29	Multiple Choice	D	1	CCSS.Math.Content.5.MD.B.2	Measurement and Data	0.59		
30	Multiple Choice	D	1	CCSS.Math.Content.5.MD.C.5c	Measurement and Data	0.71		
<b>Session 2</b>								
31	Multiple Choice	B	1	CCSS.Math.Content.5.G.B.3	Geometry	0.71		
32	Multiple Choice	D	1	CCSS.Math.Content.5.NF.A.1	Number and Operations - Fractions	0.74		
33	Multiple Choice	B	1	CCSS.Math.Content.4.MD.A.1	Measurement and Data	0.41		
34	Multiple Choice	D	1	CCSS.Math.Content.5.NF.A.1	Number and Operations - Fractions	0.74		

35	Multiple Choice	B	1	CCSS.Math.Content.5.NBT.B.7	Number and Operations in Base Ten	0.74		
36	Multiple Choice	D	1	CCSS.Math.Content.5.NBT.A.3a	Number and Operations in Base Ten	0.67		
37	Multiple Choice	A	1	CCSS.Math.Content.5.NF.B.6	Number and Operations - Fractions	0.64		
38	Multiple Choice	D	1	CCSS.Math.Content.5.NF.B.4a	Number and Operations - Fractions	0.49		
39	Constructed Response		2	CCSS.Math.Content.5.MD.C.5c	Measurement and Data		0.78	0.39
40	Constructed Response		2	CCSS.Math.Content.5.NF.A.2	Number and Operations - Fractions		1.04	0.52
41	Constructed Response		2	CCSS.Math.Content.5.NBT.A.1	Number and Operations in Base Ten		1.05	0.52
42	Constructed Response		2	CCSS.Math.Content.5.NF.B.7c	Number and Operations - Fractions		1.02	0.51
43	Constructed Response		2	CCSS.Math.Content.5.MD.A.1	Measurement and Data		0.9	0.45
44	Constructed Response		2	CCSS.Math.Content.5.NF.B.5b	Number and Operations - Fractions		0.93	0.47
45	Constructed Response		3	CCSS.Math.Content.5.NBT.B.7	Number and Operations in Base Ten		2.34	0.78

\*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.

## 2-Point Holistic Rubric

<b>2 Point</b>	A two-point response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.  This response <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 Point</b>	A one-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task.  This response <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 Point*</b>	A zero-point 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.

\* 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-Point Holistic Rubric**

<b>3 Point</b>	A three-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task.  This response <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 Point</b>	A two-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task.  This response <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 Point</b>	A one-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task.  This response <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 Point*</b>	A zero-point 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.

\* 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).

## **2019 2- and 3-Point Mathematics Scoring Policies**

Below are the policies to be followed while scoring the mathematics tests for all grades:

1. If a student shows the work in other than a designated “Show your work” or “Explain” area, that work should still be scored.
2. If the question requires students to show their work, and the student shows appropriate work and clearly identifies a correct answer but fails to write that answer in the answer space, the student should still receive full credit.
3. If students are directed to show work or provide an explanation, a correct answer with **no** work shown or **no** explanation provided, receives **no** credit.
4. If students are **not** directed to show work, any work shown will **not** be scored. This applies to items that do **not** ask for any work and items that ask for work for one part and do **not** ask for work in another part.
5. If the student provides one legible response (and one response only), the rater should score the response, even if it has been crossed out.
6. If the student has written more than one response but has crossed some out, the rater should score only the response that has **not** been crossed out.
7. If the student provides more than one response, but does not indicate which response is to be considered the correct response and none has been crossed out, the student shall not receive full credit.
8. If the student makes a conceptual error (that is an error in understanding rather than an arithmetic or computational error), that student shall not receive more than 50% credit.
9. Trial-and-error responses are **not** subject to Scoring Policy #6 above, since crossing out is part of the trial-and-error process.
10. If a response shows repeated occurrences of the same conceptual error within a question, the conceptual error should **not** be considered more than once in gauging the demonstrated level of understanding.
11. In questions requiring number sentences, the number sentences must be written horizontally.
12. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.
13. 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). This is not to be confused with a score of zero wherein the student does respond to part or all of the question but that work results in a score of zero.

## EXEMPLARY RESPONSE

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

*Show your work.*

Number of layers:  $9 + 1 = 10$

Number of unit cubes per layer: 16

Total volume:  $10 \times 16 = 160$  cubic units

*OR*

Volume of the bottom layer: 16 cubic units

Volume of all other layers:  $9 \times 16 = 144$  cubic units

Total volume:  $16 + 144 = 160$  cubic units

*OR other valid process*

**Answer** 160 cubic units

# GUIDE PAPER 1

Additional

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

*Show your work.*

I know that one layer is 16 unit cubes and is a square, which means the base of this prism is  $4 \times 4$ . And it says there are 9 more layers than one, so there are 10 layers, and  $4 \times 4 \times 10$  ( $l \times w \times h$ ) equals 160. And another way to figure this out is to calculate  $16 \times 10$  since it's base  $\times$  height formula.

*Answer*

160

cubic units

## Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The total volume of all layers of the tower is correctly determined using mathematically sound procedures.

## GUIDE PAPER 2

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

Show your work.

$$\begin{array}{r} 16 \\ \times 9 \\ \hline 144 \\ + 16 \\ \hline 144 \end{array}$$

Answer 160 cubic units

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The volume of 9 layers is correctly calculated and correctly added to the volume of the bottom layer to determine the solution.

## GUIDE PAPER 3

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

*Show your work.*

$$\begin{array}{r} \times 16 \\ 10 \\ \hline 160 \end{array}$$

**Answer**

it takes 160  
cubic units to  
make the tower

cubic units

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

This response contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and procedures in the task. The total volume of all layers of the tower is correctly determined using a mathematically sound procedure. Not showing the addition step is acceptable since it is a simple single digit numbers addition.

## GUIDE PAPER 4

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

Show your work.

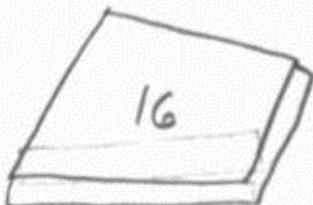
$$16 \times 9 = ?$$

6, 12, 18, 24, 30, 36, 42, 48, 54

5 16

$\times$  9

144



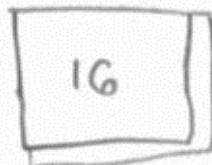
+ 9 more layers

Check

6, 12, 18, 24,  
30, 36, 42, 48,  
54

$$\begin{array}{r} 116 \\ \times 3 \\ \hline 348 \\ + 116 \\ \hline 144 \\ - 134 \\ \hline 10 \end{array}$$

The total  
volume of  
the tower  
is 144 cubic  
units.



Answer 144 cubic units

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The volume of 9 layers is correctly calculated and the work shows understanding that the bottom layer's volume should be added; however, the addition is not carried out. The response correctly addresses only some elements of the task.

## GUIDE PAPER 5

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

*Show your work.*

$$\begin{aligned}V &= L \times W \times H \\V &= 4 \times 4 \times 9 \\V &= 16 \times 9 \\V &= 144 \text{ cubic units}\end{aligned}$$

*Answer*

144

cubic units

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The volume of 9 layers is correctly calculated but inappropriately provided as the solution. The volume of the bottom layer is not included in the total volume. The response correctly addresses only some elements of the task.

## GUIDE PAPER 6

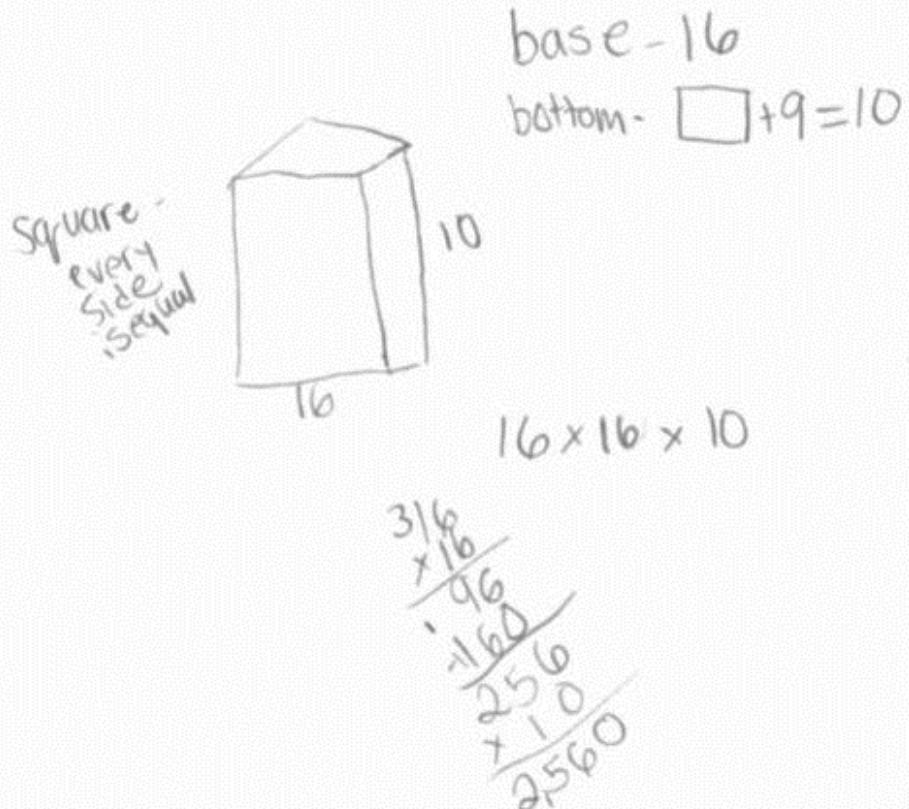
39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

Show your work.



Answer 2,560 cubic units

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The value 16 is misinterpreted as the side length of the base rather than the volume of the bottom layer. A correct procedure is then used to calculate the total volume of the tower. The response contains an incorrect solution but applies a mathematically appropriate process.

# GUIDE PAPER 7

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

*Show your work.*

$$\begin{array}{r} \times 16 \\ 9 \\ \hline 414 \end{array}$$

**Answer**

414

cubic units

## Score Point 0 (out of 2 points)

Although the response contains some elements of a correct procedure, holistically the work is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The volume of 9 layers is incorrectly calculated and the bottom layer's volume is not addressed.

# GUIDE PAPER 8

Additional

39

Martin is using unit cubes to build a tower in the shape of a right rectangular prism. A description of the tower is listed below.

- bottom layer is made of 16 unit cubes
- bottom layer is in the shape of a square prism
- 9 more equal layers of unit cubes are added on top of the bottom layer

What is the total volume, in cubic units, of the completed tower?

Show your work.

$$\begin{array}{r} 16 \\ + 9 \\ \hline 25 \end{array}$$

unit cubes

Answer 25 cubic units

## Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect procedure is used to obtain an incorrect solution. Adding volume and layers shows no understanding.

## EXEMPLARY RESPONSE

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

*Show your work.*

Time spent practicing:  $1\frac{1}{2} + 1\frac{1}{4} + 1 = 1\frac{3}{4} + 1\frac{1}{4} + \frac{4}{4} = \frac{6}{4} + \frac{5}{4} + \frac{4}{4} = \frac{15}{4} = 3\frac{3}{4}$  hours

Time left to practice:  $4\frac{1}{2} - 3\frac{3}{4} = 4\frac{2}{4} - 3\frac{3}{4} = \frac{18}{4} - \frac{15}{4} = \frac{3}{4}$  hour

*OR*

$$1\frac{1}{2} \text{ hours} = 60 + 30 = 90 \text{ min}$$

$$1\frac{1}{4} \text{ hours} = 60 + 15 = 75 \text{ min}$$

$$1 \text{ hour} = 60 \text{ min}$$

$$4\frac{1}{2} \text{ hours} = 4 \times 60 + 30 = 240 + 30 = 270 \text{ min}$$

$$\text{Time spent practicing: } 90 + 75 + 60 = 225 \text{ min} = 3 \text{ hours } 45 \text{ min} = 3\frac{3}{4} \text{ hours}$$

$$\text{Time left to practice: } 270 - 225 = 45 \text{ min} = \frac{3}{4} \text{ hour}$$

*OR other valid process*

**Answer** \_\_\_\_\_  $\frac{3}{4}$  hours

# GUIDE PAPER 1

Additional

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

*Show your work.*

$$\begin{aligned}1 + 1 + 1 &= 3 \quad \frac{1}{2} = \frac{2}{4} \quad \frac{2}{4} + \frac{1}{4} = \frac{3}{4} \quad \frac{3}{4} + 3 = 3\frac{3}{4} \\4\frac{1}{2} - 3\frac{3}{4} &= \frac{3}{4}\end{aligned}$$

*Answer*

$\frac{3}{4}$
---------------

 hours

## Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of hours Joel already practiced is correctly calculated and then correctly subtracted from the total number of hours to determine the solution.

## GUIDE PAPER 2

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours = 90 min
- Wednesday:  $1\frac{1}{4}$  hours = 75 min
- Thursday: 1 hour = 60 min

How many more hours does Joel need to practice this week to meet his goal?

Show your work.

$$\begin{array}{r} 90 \\ + 75 \\ \hline 165 \\ + 60 \\ \hline 225 \end{array} \quad 4\frac{1}{2} = 270$$
$$\begin{array}{r} 610 \\ - 225 \\ \hline 45 \end{array} \quad 45 = \frac{3}{4}$$

Answer 3 hours

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The conversion from hours to minutes is carried out correctly and the amount of time left to practice is correctly calculated using mathematically sound procedures. The answer in minutes is correctly converted back into hours. Per Scoring Policy #1, the work written in other than a designated area should still be scored.

## GUIDE PAPER 3

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

Show your work.

$$\begin{array}{r} \cancel{1} \cancel{0} 7 \\ - \cancel{1} \cancel{2} 4 \\ \hline \underline{1} - \frac{4}{4} \\ \hline \cancel{3} \end{array} \quad \begin{array}{r} 4 \frac{1}{2} = 4 \frac{2}{4} \\ - 1 \frac{1}{2} = \underline{1} \frac{2}{4} \\ \hline 3 \frac{0}{4} \text{ or } 3 \end{array}$$

$$\begin{array}{r} 3 - 1 \frac{1}{4} = 1 \frac{3}{4} \\ 1 \frac{3}{4} - 1 = \frac{3}{4} \end{array}$$

$$\begin{array}{r} 2 \frac{4}{4} \\ - 1 \frac{1}{4} \\ \hline 1 \frac{3}{4} \end{array}$$

Answer  $\frac{3}{4}$  hours

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The amount of time left to practice is correctly calculated by subtracting the hours practiced each day from the total number of hours.

## GUIDE PAPER 4

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

*Show your work.*

$$1\frac{1}{2} + 1\frac{1}{4} + 1 = 3\frac{3}{4} \quad 4\frac{1}{2} - 3\frac{3}{4} = \frac{1}{4}$$

*Answer*

$\frac{1}{4}$  hours to  
meet his goal

hours

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The number of hours Joel already practiced is correctly calculated; however, a calculation error occurs when subtracting the result from the total number of hours. The response contains an incorrect solution but applies a mathematically appropriate process.

# GUIDE PAPER 5

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

*Show your work.*

$$\begin{array}{r} 1\frac{2}{4} \\ - 1\frac{1}{4} \\ \hline 1 \\ = 3\frac{3}{4} \end{array}$$

*Answer*

joel needs  
to practice  
for  $\frac{3}{4}$  more  
hours

hours

## Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The number of hours Joel already practiced is correctly calculated. Although the correct solution is provided, the subtraction is not shown. It is not clear how the solution is obtained since the fraction  $\frac{3}{4}$  is also part of the mixed number  $3\frac{3}{4}$ . The response contains the correct solution but the required work is incomplete.

# GUIDE PAPER 6

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

Show your work.

$$\begin{array}{r} 1\frac{1}{4} \\ + 1 \\ \hline 2\frac{1}{4} \\ + 1\frac{1}{2} \\ \hline 3\frac{1}{2} \\ + 1 \\ \hline 4\frac{1}{2} \end{array}$$

Answer    hours

## Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A calculation error is made when determining the number of hours Joel already practiced ( $2\frac{1}{4} + 1\frac{1}{2} \neq 3\frac{1}{2}$ ). The result is correctly used to determine the amount of time left to practice to meet the goal. The response contains an incorrect solution but applies a mathematically appropriate process.

# GUIDE PAPER 7

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

Show your work.

► DO NOT WRITE BEYOND THIS AREA ►

$$\begin{array}{r} & \frac{1}{2} \\ + & \frac{1}{4} \\ \hline & \frac{2}{6} \\ + & 1 \\ \hline & 3 \frac{2}{6} \end{array}$$

$$\begin{array}{c} \cancel{\frac{2}{6}} - \cancel{\frac{1}{5}} = \cancel{\frac{3}{9}} = \frac{4}{12} \\ \frac{4}{12} = \frac{2}{6} = \frac{1}{3} \end{array}$$

Answer 3  $\frac{2}{6}$  hours

## Score Point 0 (out of 2 points)

Although the response contains some elements of a correct procedure, holistically the work is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. A calculation error is made when determining the number of hours Joel already practiced and the number of hours left to practice is not addressed.

# GUIDE PAPER 8

Additional

40

Joel has a goal to practice his clarinet for  $4\frac{1}{2}$  hours per week. The list below shows the number of hours Joel has practiced so far this week.

- Monday:  $1\frac{1}{2}$  hours
- Wednesday:  $1\frac{1}{4}$  hours
- Thursday: 1 hour

How many more hours does Joel need to practice this week to meet his goal?

*Show your work.*

Joel needs  $\frac{3}{4}$  of an hour so he can reach his goal

*Answer*

jeol need  $\frac{3}{4}$   
of an hour so  
he can reeach  
his gole

hours

## Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the correct solution is provided, no work is shown to support it. Per Scoring Policy #3, this response receives no credit.

## EXEMPLARY RESPONSE

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

The value of the digit 2 in 26,000 is 20,000.

The value of the digit 2 in 32,000 is 2,000.

$20,000 > 2,000$ .

*OR*

The value of the digit 2 in 26,000 is 10 times greater than the value of the digit 2 in 32,000.

*OR*

The value of the digit 2 in 32,000 is  $\frac{1}{10}$  the value of the digit 2 in 26,000.

*OR other valid explanation*

# GUIDE PAPER 1

Additional

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

The value of the digit 2 in the number 32,000 is ten times less than the value of the digit 2 in the number 26,000. The digit 2 in the number 32,000 is in the one thousands place while the digit 2 in the number 26,000 is in the ten thousands place.

## Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The place values of the digit 2 in the two numbers are correctly compared and a correct explanation is provided. The phrase “*is ten times less than*” is taken to mean “*is one tenth the value of*,” and is considered an inconsequential error.

## GUIDE PAPER 2

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

The value of the digit 2 in 32,000 is  $\frac{1}{10}$  of the value of digit 2 in 26,000. And the value of digit 2 in 26,000 is 10 times greater than the value of digit 2 in 32,000.

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The place values of the digit 2 in the two numbers are correctly compared and a correct explanation is provided.

## GUIDE PAPER 3

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

The number 2 in 26,000 is bigger than the 2 in 32,000 because the value 2 in 26,000 is 20,000 and the value 2 in 32,000 is 2,000

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The place values of the digit 2 in the two numbers are correctly compared and a correct explanation is provided.

## GUIDE PAPER 4

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

the digit 2 in 32000 is in the thousand place and the digit 2 in 26000 is in the ten thousand place

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The place value of the digit 2 in each number is correctly explained; however, a comparison is not provided. The response correctly addresses only some elements of the task.

## GUIDE PAPER 5

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

$$26000 = 20000$$

$$32000 = 2000$$

$$2000 < 20000$$

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct comparison is provided; however, the explanation contains two incorrect identities and is insufficient to explain the value of the digit 2 in the two given numbers. The response correctly addresses only some elements of the task.

## GUIDE PAPER 6

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

Explain your answer.

The number 2 in the number 32,000 is a smaller value than the number 2 in the number 26,000.

32,000

26,000

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although the values of the digit 2 in the two numbers are correctly compared, the explanation does not sufficiently address the place value and is incomplete. The response correctly addresses only some elements of the task.

## GUIDE PAPER 7

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

It is 10 times greater. You are just shifting the 2 1 time to the left.

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

Although the response contains some elements of a correct procedure, holistically the explanation is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The order of the numbers being compared is not described, and the explanation incorrectly implies that the value of the digit 2 in 32,000 “is 10 times greater” than the value of the digit 2 in 26,000.

# GUIDE PAPER 8

Additional

41

How does the value of the digit 2 in the number 32,000 compare with the value of the digit 2 in the number 26,000?

*Explain your answer.*

how i got my answer was i looked at both and 32,000 is bigger than 26,000

## Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The comparison is irrelevant and the explanation does not address the task.

## EXEMPLARY RESPONSE

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

*Show your work.*

$$5 \div \frac{1}{3} = 5 \times \frac{3}{1} = 15 \text{ days}$$

*OR*

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

There are 3 servings of  $\frac{1}{3}$  cup in 1 cup of oatmeal.

$$3 \times 5 = 15 \text{ servings in 5 cups}$$

Therefore, in 15 days Stella will finish all the oatmeal.

*OR other valid process*

**Answer**       15       days

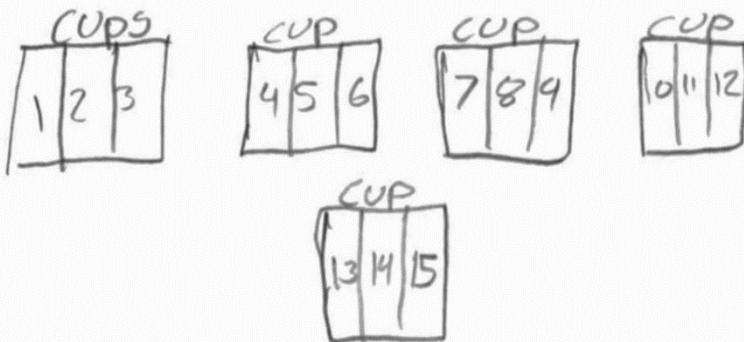
# GUIDE PAPER 1

Additional

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

Show your work.



$$\frac{5}{1} \div \frac{1}{3} = \frac{5}{1} \times \frac{3}{1} = 15 \text{ days}$$

Answer 15 days

## Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The chart correctly represents 15 servings of  $\frac{1}{3}$  in 5 cups of oatmeal and correct calculations are provided to determine the number of days needed to eat all the oatmeal.

## GUIDE PAPER 2

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

*Show your work.*

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

$$3/3 \times 5 = 15/3$$

In 15 days  
Stella will  
finish the 5  
cups of  
oatmeal.

**Answer**

days

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The 5 cups of oatmeal are correctly written using thirds and the numerator of the fraction is correctly interpreted as the number of days needed to eat all the oatmeal.

## GUIDE PAPER 3

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

*Show your work.*

$$5 \div \frac{1}{3} = 15.$$

it will take  
stella 15 days  
to finish the  
oatmeal.

**Answer**

days

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

This response contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and procedures in the task. The number of days needed to eat all the oatmeal is correctly determined using a sound procedure.

## GUIDE PAPER 4

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

*Show your work.*

$$\frac{1}{3} = 3 \quad 3 \times 5 = 15$$

**Answer**

15

days

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The number of days needed to eat all the oatmeal is correctly determined; however, the work does not sufficiently explain the step from  $\frac{1}{3}$  to 3 and it is not clear what “ $\frac{1}{3} = 3$ ” represents. The response contains the correct solution but the required work is incomplete.

## GUIDE PAPER 5

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

Show your work.

$$5 \div \frac{1}{3} = 5 \times 3 = 18$$

Answer 18 days

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct procedure is used to determine the number of days; however, a calculation error results in an incorrect solution. The response contains an incorrect solution but applies an appropriate process.

# GUIDE PAPER 6

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

Show your work.

$$\begin{array}{r} \text{Day 1: } 5\frac{3}{3} \\ - \frac{1}{3} \\ \hline 4\frac{2}{3} \end{array} \quad \begin{array}{r} \text{Day 2: } 4\frac{2}{3} \\ - \frac{1}{3} \\ \hline 4\frac{1}{3} \end{array} \quad \begin{array}{r} \text{Day 3: } 4\frac{1}{3} \\ - \frac{1}{3} \\ \hline 4 \end{array}$$
$$\begin{array}{r} \text{Day 4: } 4\frac{1}{3} \\ - \frac{1}{3} \\ \hline 3\frac{2}{3} \end{array} \quad \begin{array}{r} \text{Day 5: } 3\frac{2}{3} \\ - \frac{1}{3} \\ \hline 3\frac{1}{3} \end{array} \quad \begin{array}{r} \text{Day 6: } 3\frac{1}{3} \\ - \frac{1}{3} \\ \hline 2\frac{2}{3} \end{array} \quad \begin{array}{r} \text{Day 7: } 2\frac{2}{3} \\ - \frac{1}{3} \\ \hline 2\frac{1}{3} \end{array} \quad \begin{array}{r} \text{Day 8: } 2\frac{1}{3} \\ - \frac{1}{3} \\ \hline 2 \end{array}$$

Answer 12 days

## Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct procedure of repeated subtraction is used to determine the number of days needed to finish the oatmeal; however, the work after "Day 9" is not shown and the process is stopped early with oatmeal still remaining. The response contains an incorrect solution but applies an appropriate process.

## GUIDE PAPER 7

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

*Show your work.*

$$5 \div \frac{1}{3} = 1\frac{2}{3}$$

$$5 \div 3 = 1\frac{2}{3}$$

**Answer**

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

days

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

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the work contains the correct procedure, the numbers are incorrectly divided. A second, incorrect procedure is shown to obtain the same incorrect solution. Holistically, the work shows no overall understanding.

# GUIDE PAPER 8

Additional

42

There are 5 cups of oatmeal in a container. Stella eats  $\frac{1}{3}$  cup of the oatmeal every day for breakfast. In how many days will Stella finish all the oatmeal in the container?

Show your work.

$$5 \times \frac{1}{3}$$

$$\frac{5}{1} - \frac{1}{5} \times \frac{1}{3} = \frac{1}{15}$$

Keep  
Change  
Flip

Answer 15 days

**Score Point 0 (out of 2 points)**

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the correct solution is provided, it is obtained using an incorrect procedure.

## EXEMPLARY RESPONSE

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

*Show your work.*

$$1 \text{ yard} = 3 \text{ feet}$$

$$12 \times 3 = 36 \text{ feet of ribbon to start with}$$

$$36 - 22 = 14 \text{ feet of ribbon left}$$

*OR*

$$1 \text{ foot} = \frac{1}{3} \text{ yard}$$

$$22 \times \frac{1}{3} = 22 \div 3 = 7\frac{1}{3} \text{ yards of ribbon used}$$

$$12 - 7\frac{1}{3} = 4\frac{2}{3} \text{ yards of ribbon left}$$

$$1 \text{ yard} = 3 \text{ feet}$$

$$4\frac{2}{3} \times 3 = \frac{14}{3} \times 3 = 14 \text{ feet of ribbon left}$$

*OR other valid process*

**Answer** 14 feet

# GUIDE PAPER 1

Additional

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

Show your work.

$$12 \times 3 = 36$$

$$36 - 22 = 14$$

How I figured out how  
many feet were in a yard

$$\text{mile} = 5,280 \text{ feet}$$

$$\text{mile} = 1,760 \text{ yards}$$

(3)

$$\begin{array}{r} 760 \\ \overline{)5,280} \\ -3,520 \\ \hline 1,760 \\ -1,760 \\ \hline 0 \end{array} + \begin{array}{r} 2 \\ 1 \\ 3 \end{array}$$

Answer 14 feet

## Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The conversion to feet is carried out correctly and the remaining length is correctly determined using mathematically sound procedures.

## GUIDE PAPER 2

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

Show your work.

Step 1

$$12 \times 3 = 36 \text{ feet}$$

Step 2

$$\begin{array}{r} 36 \\ - 22 \\ \hline 14 \end{array}$$

Check

$$\begin{array}{r} 36 - 3 : 12 & 14 \\ + 22 \\ \hline 36 \end{array}$$

Answer 14 feet

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The conversion to feet is carried out correctly and the remaining length is correctly determined using mathematically sound procedures.

## GUIDE PAPER 3

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

*Show your work.*

$$12 \times 3 = 36 - 22 = 14\text{feet}$$

*Answer*

feet

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The conversion to feet is carried out correctly and the remaining length is correctly determined using mathematically sound procedures.

## GUIDE PAPER 4

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

Show your work.

$$1 \text{ yd} = 3 \text{ ft}$$

$$2 \text{ yd} = 6 \text{ ft}$$

$$3 \text{ yd} = 9 \text{ ft}$$

$$4 \text{ yd} = 12 \text{ ft}$$

$$5 \text{ yd} = 15 \text{ ft}$$

$$6 \text{ yd} = 18 \text{ ft}$$

$$7 \text{ yd} = 21 \text{ ft}$$

$$8 \text{ yd} = 24 \text{ ft}$$

$$9 \text{ yd} = 27 \text{ ft}$$

$$10 \text{ yd} = 30 \text{ ft}$$

$$11 \text{ yd} = 33 \text{ ft}$$

$$12 \text{ yd} = 36 \text{ ft}$$

$$\begin{array}{r} 36 \text{ ft} \\ - 22 \text{ ft} \\ \hline 13 \text{ ft} \end{array}$$

remaining

$$\begin{array}{r} 12 \\ \times 3 \\ \hline 36 \end{array}$$

Answer 13 feet

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The conversion to feet is carried out correctly; however, a calculation error is made when subtracting the used length of ribbon, which results in an incorrect solution. The response contains an incorrect solution but applies a mathematically appropriate process.

## GUIDE PAPER 5

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

*Show your work.*

$$12 \times 36 = 432$$
$$432 - 22 = 410\text{ft}$$

*Answer*

410      feet

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Yards are inappropriately converted to inches instead of feet. The result is correctly used to determine the remaining length. The response correctly addresses only some elements of the task.

# GUIDE PAPER 6

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

*Show your work.*

$$\begin{array}{r} \times 12 \\ 3 \\ \hline 36 \end{array}$$

**Answer**

36

feet

## Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The conversion to feet is carried out correctly but inappropriately provided as a solution. The remaining length is not calculated. The response correctly addresses only some elements of the task.

## GUIDE PAPER 7

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

*Show your work.*

$$\begin{array}{r} 12 \times 22 = 264 \\ 264 - 22 = 242 \end{array}$$

**Answer**

she has 242 ft  
of ribbon left

feet

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

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the subtraction is correctly carried out and can be considered as part of the correct process, multiplying numbers given in the prompt ( $12 \times 22$ ) is an incorrect procedure and holistically, shows no overall understanding.

# GUIDE PAPER 8

Additional

43

Olga decorates blankets with ribbon. She has 12 yards of ribbon. She uses 22 feet of the ribbon to decorate blankets. After she decorates the blankets, how many feet of ribbon remain?

Show your work.

$$\begin{array}{r} 12 \\ \times 22 \\ \hline 24 \\ +240 \\ \hline 284 \end{array}$$

$$\begin{array}{r} 12 \\ \times 2 \\ \hline 24 \end{array}$$

~~$$\begin{array}{r} 12 \\ \times 22 \\ \hline 24 \\ +44 \\ \hline 46 \\ -36 \\ \hline 10 \\ -10 \\ \hline 0 \end{array}$$~~

~~12~~~~$$\begin{array}{r} 12 \\ \times 2 \\ \hline 24 \end{array}$$~~

Answer 284 feet

**Score Point 0 (out of 2 points)**

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect procedure is used to obtain an incorrect solution.

## EXEMPLARY RESPONSE

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

Any value of  $y > 7$  would make the product greater than 5, because if  $y > 7$  then the factor  $\frac{y}{7}$  will be greater than 1. If a number is multiplied by a factor greater than 1 than the product is greater than this number.

*OR*

$$y = 10, \text{ because } 5 \times \frac{10}{7} = \frac{50}{7} = 7\frac{1}{7}$$

$$7\frac{1}{7} > 5$$

*OR any other value(s) of  $y > 7$  with a valid explanation*

# GUIDE PAPER 1

Additional

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

Any value greater than the denominator, multiplied by the whole number 5 would give you a product greater than 5. For example;  $\frac{5}{1} \times \frac{8}{7}$

$$= \frac{40}{7} = 5\frac{5}{7} > 5$$

## Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The range of all possible  $y$ -values is correctly identified and a correct explanation with a specific example is provided.

## GUIDE PAPER 2

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

Explain your answer.

8 because  $\frac{8}{7}$  is greater than 1 which will make  
the 5 greater than 5.

$$\frac{5}{1} \times \frac{8}{7} = \frac{40}{7}$$

$$\begin{array}{r} 5 \\ \overline{)7} \end{array} \begin{array}{r} 40 \\ -35 \\ \hline 5 \end{array}$$

$5\frac{5}{7}$  greater than 5

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct value of  $y$  is chosen and a correct explanation is provided.

## GUIDE PAPER 3

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

$$\frac{5}{1} \times \frac{8}{7} = \frac{40}{7}$$

$$40 \div 7 = 5\frac{5}{7} \quad \text{Value of } y = 8$$

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct value of  $y$  is chosen and a correct mathematical explanation is provided.

## GUIDE PAPER 4

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

8 because it would turn  $\frac{8}{7}$  into a mixed number like  $1\frac{1}{7}$  and the product would then become  $5\frac{1}{7}$ .

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct value of  $y$  is chosen; however, the expression is incorrectly evaluated, which detracts from the demonstration of full understanding. The response correctly addresses only some elements of the task.

## GUIDE PAPER 5

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

If the value of  $y$  was eight your answer would be greater than 5

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct value of  $y$  is chosen; however, the explanation is incomplete: the expression is not evaluated for the chosen value. The response correctly addresses only some elements of the task.

## GUIDE PAPER 6

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

If the value of  $y$  is greater than  $\frac{7}{1}$  whole. So it could be 8.

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct value of  $y$  is chosen; however, it is inappropriately compared with the value of the fraction instead of the denominator. Some understanding is shown that factor  $\frac{y}{7}$  should be greater than 1. The response correctly addresses only some elements of the task.

## GUIDE PAPER 7

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

$$\frac{35}{7}$$

**Score Point 0 (out of 2 points)**

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An answer with no explanation is provided. It is not clear if the chosen answer is the numerator of the fraction or the value of the fraction. Per Scoring Policy #3, this response receives no credit.

## GUIDE PAPER 8

Additional

44

In the expression  $5 \times \frac{y}{7}$ , what value of  $y$  would make a product greater than 5?

*Explain your answer.*

y is the 25th letter  
of the alphabet  
so its bigger than 5.

$$5 \times \frac{25}{7} =$$

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

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The explanation is irrelevant. Per Scoring Policy #6, the erased part of the response should not be scored.

## EXEMPLARY RESPONSE

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

*Show your work.*

$$\text{Portion B} = 2 \times \text{Portion A}$$

$$\text{Portion B} = 8.25 + 8.25 = 2 \times 8.25 = 16.5 \text{ ounces}$$

$$\text{Portion C} = 2 \times \text{Portion B}$$

$$\text{Portion C} = 8.25 + 8.25 + 8.25 + 8.25 = 2 \times 16.5 = 33 \text{ ounces}$$

*OR other valid process*

**Answer** Portion B 16.5 ounces

Portion C 33 ounces

# GUIDE PAPER 1

Additional

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

Show your work.

$$\begin{array}{r} B \\ + 8.25 \\ \hline 8.25 \\ \hline 16.50 \end{array} \qquad \begin{array}{r} 12 \\ 8.25 \\ + 8.25 \\ \hline 8.25 \\ \hline 8.25 \\ \hline 33.00 \end{array}$$

Answer Portion B 16.50 ounces

Portion C 33.00 ounces

## Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The weight of each portion is correctly calculated using repeated addition. The response is complete and correct.

## GUIDE PAPER 2

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

*Show your work.*

A 8.25    B  $8.25 \times 2 = 16.50$     C  $16.50 \times 2 = 33.00$

**Answer**    Portion B  ounces

Portion C  ounces

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The weight of each portion is correctly calculated using multiplication. The response is complete and correct.

## GUIDE PAPER 3

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

**Show your work.**

$$\begin{aligned}8 + 8 &= 16 \\.25 + .25 &= .50 \\16 + .50 &= 16.50 = \text{portion b} \\16 + 16 &= 32\\.50 + .50 &= 1 \\32 + 1 &= 33 = \text{portion c}\end{aligned}$$

**Answer** Portion B  ounces

Portion C  ounces

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The weight of each portion is correctly calculated using sound procedures. The response is complete and correct.

## GUIDE PAPER 4

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

*Show your work.*

The image shows two handwritten multiplication problems. The first problem on the left is for portion B: 8.25 multiplied by 2. The second problem on the right is for portion C: 16.50 multiplied by 2. Both problems are set up with the decimal point aligned and the multiplication carried out.

$\begin{array}{r} 8.25 \\ \times 2 \\ \hline 16.50 \end{array}$	$\begin{array}{r} 16.50 \\ \times 2 \\ \hline 33.00 \end{array}$
---	--

**Answer** Portion B  ounces

Portion C  ounces

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

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. A correct process is applied to determine the weight of each portion and the weight of portion B is correctly calculated; however, a calculation error leads to an incorrect solution for portion C. The response contains an incorrect solution but provides sound procedures.

## GUIDE PAPER 5

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

Show your work.

$$\begin{array}{r} +1+1 \\ \hline 16.50 \\ \times 16.50 \\ \hline 33.00 \end{array}$$

Answer Portion B 16.50 ounces

Portion C 33.00 ounces

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

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. The weight of each portion is correctly calculated; however, the work does not show how the answer for portion B is obtained. The response appropriately addresses most but not all aspects of the task.

# GUIDE PAPER 6

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

Show your work.

$$\begin{array}{r} & 1 \\ & 8.25 \\ \times & 2 \\ \hline 17.50 \end{array}$$

$$\begin{array}{r} & 1 \\ & 17.50 \\ \times & 2 \\ \hline 35.00 \end{array}$$

Answer Portion B 17.50 ounces

Portion C 35.00 ounces

## Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. A correct process is applied to determine the weight of each portion; however, a calculation error leads to an incorrect solution for portion B. The result is correctly used to determine the weight of portion C. The response contains an incorrect solution but provides sound procedures.

# GUIDE PAPER 7

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

**Show your work.**

portion A 8.25

portion b  $8.25 + 8.25 = 16.50$

portion c  $16.50 + 8.25 = 24.75$

**Answer** Portion B      portion b  
ounces is  
16.50      ounces

Portion C      portion c  
ounces is  
24.75      ounces

## Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. The weight of portion B is correctly determined. A conceptual error is made when calculating the weight of portion C: the weight of portion B is inappropriately increased by a factor of 1.5 instead of 2. The response addresses some elements of the task correctly but reaches an inadequate solution and provides reasoning that is faulty. Per Scoring Policy #8, this response cannot receive more than 50% credit.

# GUIDE PAPER 8

Additional

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

Show your work.

$$\begin{array}{r} 8.25 \\ + 8.25 \\ \hline 16.50 \\ 11 \\ 16.50 \\ + 16.50 \\ \hline 33.00 \\ + 33.00 \\ \hline 66.00 \end{array}$$

Answer Portion B 33.00 ounces

Portion C 66.00 ounces

## Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. A conceptual error is made when calculating the weight of portion B: the weight of portion A is inappropriately increased by a factor of 4 instead of 2. The result is correctly used to calculate the weight of portion C. The response addresses some elements of the task correctly but reaches an inadequate solution and provides reasoning that is faulty.

# GUIDE PAPER 9

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

Show your work.

$$\begin{array}{r} & 1 \\ & 8.25 \\ + & 8.25 \\ \hline & 15.50 \\ + & 15.50 \\ \hline & 30.100 \end{array}$$

Answer Portion B 15.50 ounces

Portion C 30.100 ounces

## Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. A correct process is applied to determine the weight of each portion; however, multiple calculation errors lead to an incorrect solution for portion C and the solution for portion B is not clearly identified in the work and appears to be 1.50 in the answer space. The response addresses some elements of the task correctly but reaches an inadequate solution and provides reasoning that is faulty and incomplete.

# GUIDE PAPER 10

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

**Show your work.**

$$8.25 \times 2 = 82.5$$

$$82.5 \times 3 = 825.$$

**Answer**    Portion B 82.5 ounces ounces

Portion C 825 ounces ounces

## Score Point 0 (out of 3 points)

Although the response contains some correct elements, holistically the work is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. A correct process is attempted when calculating the weight of portion B; however, the result shows 8.25 is multiplied by 10 instead of 2. The work for portion C attempts to triple instead of double the weight of portion B, and once again actually multiplies by a factor of 10. The response shows no overall understanding.

# GUIDE PAPER 11

Additional

45

Diane has pizza dough for making pizzas. She separates the dough into the three portions listed below.

- Portion A is 8.25 ounces.
- Portion B is twice as much as portion A.
- Portion C is twice as much as portion B.

What is the weight, in ounces, of portion B and the weight, in ounces, of portion C?

*Show your work.*

Answer Portion B 16.50 ounces

Portion C 33 ounces

## Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the correct solutions are provided, they are not supported with work. Per Scoring Policy #3, this response receives no credit.