

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



# New York State *Testing Program*

---

## Mathematics Test Session 1

Grade 7

Spring 2024

**RELEASED QUESTIONS**

# Session 1



## TIPS FOR TAKING THE TEST

Here are some ideas to help you do your best:

- Read each question carefully. Take your time.
- You have a ruler, a protractor, a reference sheet, and a calculator that you can use on the test if they help you answer the question.

## Grade 7 Mathematics Reference Sheet

### CONVERSIONS

1 yard = 3 feet  
1 mile = 5,280 feet

1 cup = 8 fluid ounces  
1 pint = 2 cups  
1 quart = 2 pints  
1 gallon = 4 quarts

1 pound = 16 ounces  
1 ton = 2,000 pounds

### CONVERSIONS ACROSS MEASUREMENT SYSTEMS

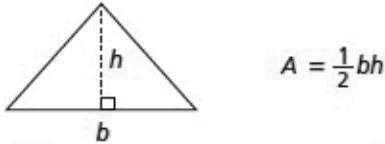
1 inch = 2.54 centimeters  
1 meter = 39.37 inches  
1 mile = 1.609 kilometers  
1 kilometer = 0.6214 mile

1 gallon = 3.785 liters  
1 liter = 0.2642 gallon

1 pound = 0.454 kilogram  
1 kilogram = 2.2 pounds

### FORMULAS AND FIGURES

Triangle



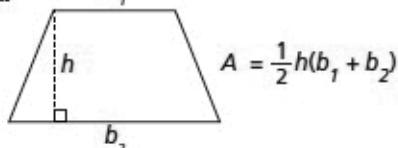
$$A = \frac{1}{2}bh$$

Parallelogram



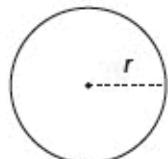
$$A = bh$$

Trapezoid



$$A = \frac{1}{2}h(b_1 + b_2)$$

Circle



$$\begin{aligned}C &= 2\pi r \\ C &= \pi d \\ A &= \pi r^2\end{aligned}$$

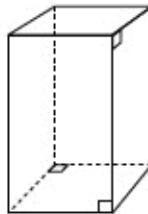
Simple Interest

$I = prt$  where  $I$  is interest,  
 $p$  is principal,  
 $r$  is rate, and  
 $t$  is time

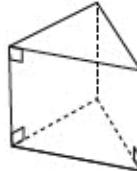
General Prism

$$V = Bh$$

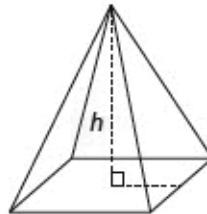
Right Rectangular Prism



Right Triangular Prism



Right Rectangular Pyramid



**1**

A store sells packages of butter. The table below shows the cost, in dollars, for different numbers of packages of butter.

**COST OF BUTTER**

Number of Packages	3	4	7	11
Cost (dollars)	9.75	13.00	22.75	35.75

What is the cost, per package, of the butter?

- A \$0.31
- B \$3.25
- C \$6.75
- D \$9.75

**GO ON**

**4**

A farmer plants 4 rows of seedlings. The first 3 rows are equal in length. The length of the fourth row is 19 yards. The total length of the 4 rows is 61 yards. What is the length, in yards, of each of the first 3 rows the farmer plants?

- A** 14
- B** 22
- C** 39
- D** 42

**5**

On average, ocean temperatures around the world range from  $-2^{\circ}\text{C}$  to  $32^{\circ}\text{C}$ . What is the difference between the two ocean temperatures?

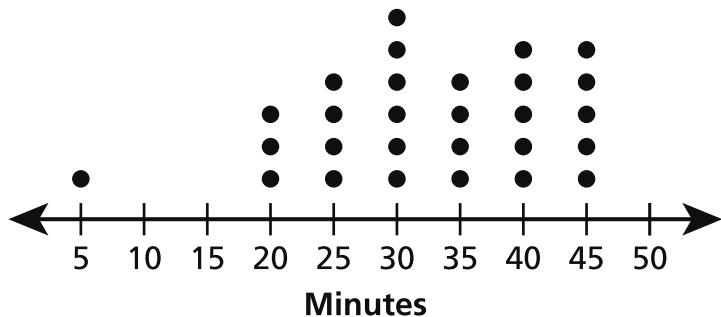
- A**  $-34^{\circ}\text{C}$
- B**  $34^{\circ}\text{C}$
- C**  $-30^{\circ}\text{C}$
- D**  $30^{\circ}\text{C}$

**GO ON**

7

Mr. Moore collected data from his sixth grade class on how many minutes they studied for a test. The dot plot below shows the number of minutes each student studied.

**STUDENT STUDY TIMES**



Which statement about the distribution of the data is true?

- A The distribution is symmetrical.
- B The distribution has a range of 25.
- C The distribution appears to have an outlier.
- D The distribution has a cluster from 25 to 35 minutes.

**GO ON**

**10**

Victoria has a movie subscription. She pays an annual membership fee of \$24.00 and also a fee of \$4.00 for each movie she watches. Which inequality can be used to determine the total number of movies,  $m$ , Victoria can watch if she wants to spend less than \$100.00 per year?

A  $24m + 4 < 100$

B  $4m + 24 < 100$

C  $4m + 24 \leq 100$

D  $4m + 24 \geq 100$

**11**

The regular price of a shirt is  $n$  dollars. During a sale, the shirt is discounted by 15%. Which pair of expressions includes two correct ways to represent the price, in dollars, of the shirt after the discount?

A  $n - 0.15$  and 0.85

B  $n - 0.15n$  and 0.85

C  $n - 15.00$  and 85.00

D  $n - 0.15n$  and  $0.85n$

**GO ON**

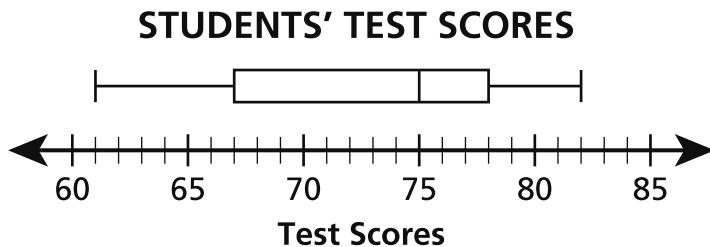
**13**

Which expression is equivalent to  $3.6(x - 5) + 2.5(x + 4)$ ?

- A  $6.1x - 1$
- B  $6.1x - 8$
- C  $1.1x - 1$
- D  $1.1x - 8$

**14**

A teacher records the test scores for the students in her class. The results are shown in the box plot below.



Based on these data, what is the interquartile range?

- A 3
- B 8
- C 11
- D 21

**GO ON**

**15**

What is the value of the expression shown below?

$$\frac{1}{3} - \left( \frac{2}{3} + \frac{5}{7} \right) - 2\frac{1}{5}$$

- A  $-\frac{1}{15}$
- B  $-\frac{11}{15}$
- C  $-1\frac{16}{105}$
- D  $-3\frac{26}{105}$

**17**

There were two movies shown at a theater. A total of 150 tickets were sold for the first movie, and 40% more tickets were sold for the second movie than for the first movie. If each ticket sold for \$13.50, what was the total amount of ticket sales, in dollars, for both movies?

- A \$2,565.00
- B \$2,835.00
- C \$4,590.00
- D \$4,860.00

**GO ON**

**21**

The table shown below represents a proportional relationship between  $x$  and  $y$ .

$x$	$y$
9	2.25
13	3.25
17	4.25
21	5.25

Which equation represents this proportional relationship?

- A**  $y = x$
- B**  $y = 4x$
- C**  $y = \frac{1}{4}x$
- D**  $y = \frac{9}{4}x$

**GO ON**

- 26** Pat uses  $2\frac{5}{8}$  cups of sugar for  $3\frac{1}{2}$  batches of cookies. She uses the same amount of sugar for each batch of cookies baked. How much sugar, in cups per batch, does Pat use to bake cookies?

A  $\frac{3}{4}$

B  $\frac{7}{8}$

C  $1\frac{1}{3}$

D  $6\frac{1}{8}$

**GO ON**

**29**

A seventh grade class sells gift cards as a fundraiser for the school library. Each gift card sells for \$15.00. The library gets 35% of the money earned for each gift card sold. How much money does the library get if the class sells 500 gift cards?

**A** \$1,167.00

**B** \$1,429.00

**C** \$2,625.00

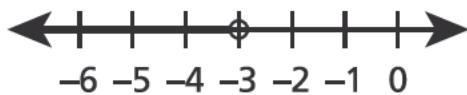
**D** \$4,875.00

**GO ON**

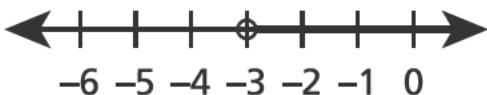
30

Which graph represents the solution to the inequality  $4 - 4x > 16$ ?

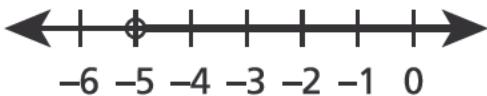
A



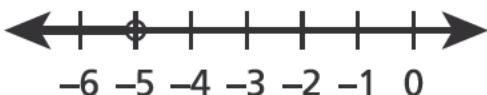
B



C



D



31

What is the value of the expression shown below?

$$-1\frac{1}{2} + \left(-\frac{7}{8}\right) \left(-\frac{3}{4}\right)$$

A  $-\frac{75}{64}$

B  $-\frac{27}{32}$

C  $-2\frac{5}{32}$

D  $-3\frac{1}{8}$

**GO ON**

# Session 2



## TIPS FOR TAKING THE TEST

Here are some ideas to help you do your best:

- Read each question carefully. Take your time.
- You have a ruler, a protractor, a reference sheet, and a calculator that you can use on the test if they help you answer the question.
- Be sure to show your work when asked.
- Be sure to explain your answer when asked.

**33**

Which situation results in a final value of zero?

- A The total number of pencils Aaron has if he had 12 pencils and bought 12 more pencils.
- B The total number of blocks Tom walks after walking 6 blocks north and walking 6 blocks west.
- C The total distance Nicole hikes from a depth of 10 feet below sea level to a height of 10 feet above sea level.
- D The total number of cookies Tiffany has if she bought 4 batches of cookies and sold the 4 batches of cookies.

**34**

Cheryl earns \$23.75 babysitting for  $2\frac{1}{2}$  hours. At that rate, how much does Cheryl earn when babysitting for  $5\frac{3}{4}$  hours?

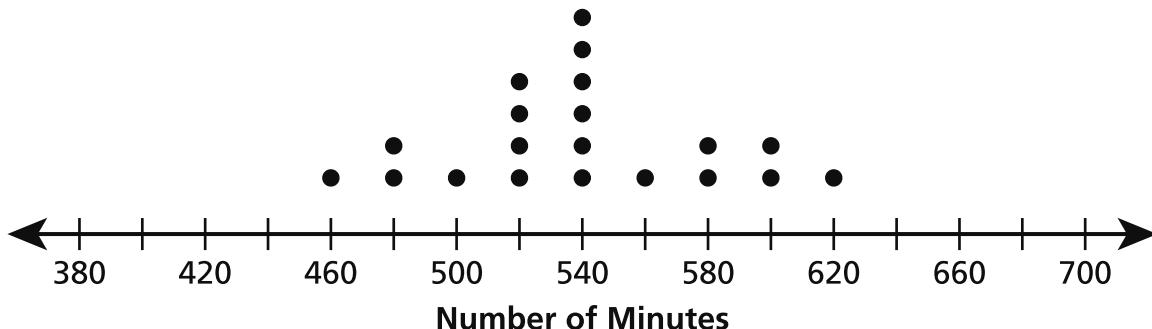
- A \$50.73
- B \$54.63
- C \$68.31
- D \$78.38

**GO ON**

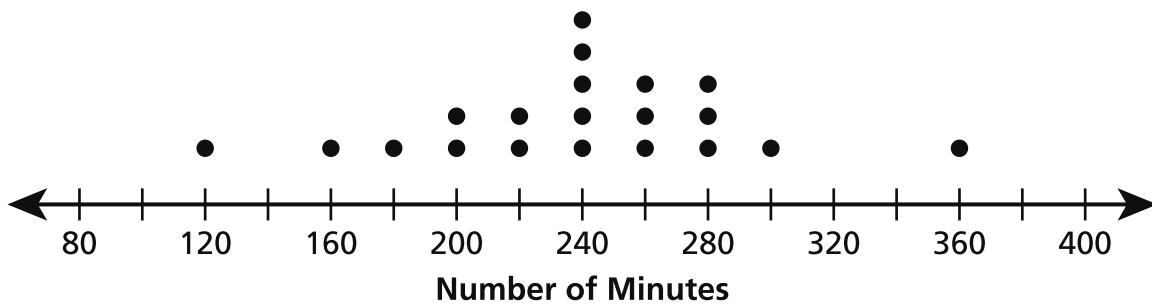
**35**

Two line plots are shown below. The first one represents the average cell phone usage per day, in minutes, of 20 teenagers. The second one represents the average cell phone usage per day, in minutes, of 20 adults.

**TEENAGERS' CELL PHONE USAGE**



**ADULTS' CELL PHONE USAGE**



Which statement about the two data sets is true?

- A The mean of the data for the adults is greater than the mean of the data for the teenagers because the data points for the adults are more spread out.
- B The mean of the data for the teenagers is greater than the mean of the data for the adults because the scale for the teenagers has greater numbers than the scale for the adults.
- C The range of the data for the teenagers is greater than the range of the data for the adults because the data points for the teenagers are clustered.
- D The range of the data for the teenagers is greater than the range of the data for the adults because the scale for the teenagers has greater numbers than the scale for the adults.

**GO ON**

**36** There are 140 students enrolled at a school.

- Of the students that are enrolled at the school,  $\frac{3}{4}$  play sports.
- Of the students that play sports,  $\frac{1}{7}$  are in an art club.

How many students enrolled at the school both play sports and are in an art club?

- A** 5
- B** 15
- C** 60
- D** 125

**37** Which expression is equivalent to  $17\left(\frac{1}{3}\right)x - \frac{7}{2}x$ ?

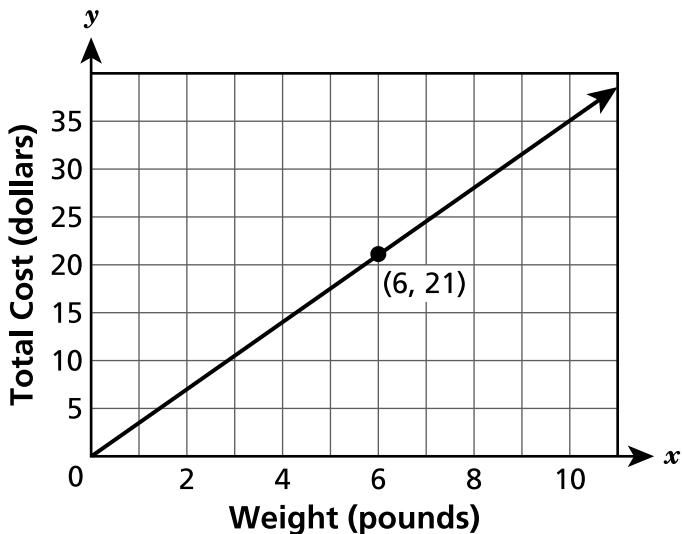
- A**  $\frac{83x}{6}$
- B**  $\frac{55x}{6}$
- C**  $\frac{13x}{6}$
- D**  $\frac{10x}{6}$

**GO ON**

**38**

A store buys candy by the pound. The graph shown below represents the relationship between the weight, in pounds, and the total cost, in dollars, of the candy.

### COST OF CANDY



What is the cost of one pound of candy?

- A \$0.29
- B \$3.33
- C \$3.50
- D \$5.00

**GO ON**

**39**

**This question is worth 1 credit.**

Marty types at an average rate of 25 words per minute. Write an equation that could be used to determine the average number of words,  $w$ , Marty types in  $t$  minutes.

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

**GO ON**

**40**

**This question is worth 1 credit.**

What is the value of the expression  $-2(-3)(4)$ ?

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

**GO ON**

**41**

**This question is worth 1 credit.**

Kenneth bought a shirt that was originally priced at \$55.00. After a discount, he paid \$38.50. What was the percent discount of the original price of the shirt?

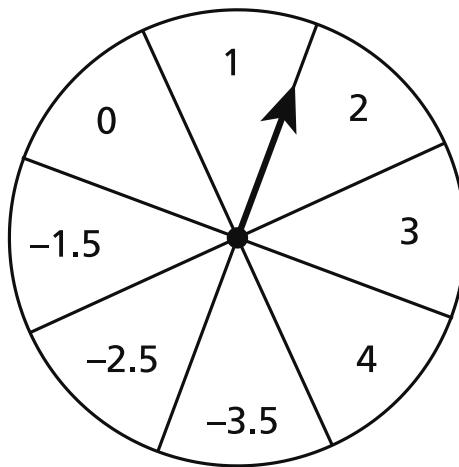
**Answer** \_\_\_\_\_ %

**GO ON**

**42**

**This question is worth 2 credits.**

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

---

---

---

**GO ON**

**43**

**This question is worth 2 credits.**

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

**Show your work.**

**Answer** \_\_\_\_\_ miles per hour

**GO ON**

**44**

**This question is worth 2 credits.**

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

**Show your work.**

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

**GO ON**

**45**

**This question is worth 2 credits.**

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

**Show your work.**

**Answer** \_\_\_\_\_ roast beef sandwiches

**GO ON**

**46**

**This question is worth 2 credits.**

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer.

**Show your work.**

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

**GO ON**

**47**

**This question is worth 2 credits.**

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

**Show your work.**

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

**GO ON**

**48**

**This question is worth 3 credits.**

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

**Show your work.**

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

**STOP**

**THE STATE EDUCATION DEPARTMENT**  
 THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234  
 2024 Mathematics Tests Map to the Standards  
**Grade 7**

Question	Type	Key	Points	Standard	Domain	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	B	1	NGLS.Math.Content.NY-7.RP.2b	Ratios and Proportional Relationships		0.89		
4	Multiple Choice	A	1	NGLS.Math.Content.NY-7.EE.4a	Expressions and Equations		0.68		
5	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.1c	The Number System		0.52		
7	Multiple Choice	C	1	NGLS.Math.Content.NY-6.SP.2	Statistics and Probability		0.59		
10	Multiple Choice	B	1	NGLS.Math.Content.NY-7.EE.4b	Expressions and Equations		0.49		
11	Multiple Choice	D	1	NGLS.Math.Content.NY-7.EE.2	Expressions and Equations		0.30		
13	Multiple Choice	B	1	NGLS.Math.Content.NY-7.EE.1	Expressions and Equations		0.68		
14	Multiple Choice	C	1	NGLS.Math.Content.NY-7.SP.1	Statistics and Probability		0.58		
15	Multiple Choice	D	1	NGLS.Math.Content.NY-7.NS.1d	The Number System		0.69		
17	Multiple Choice	D	1	NGLS.Math.Content.NY-7.EE.3	Expressions and Equations		0.40		
21	Multiple Choice	C	1	NGLS.Math.Content.NY-7.RP.2c	Ratios and Proportional Relationships		0.52		
26	Multiple Choice	A	1	NGLS.Math.Content.NY-7.RP.1	Ratios and Proportional Relationships		0.47		
29	Multiple Choice	C	1	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships		0.67		
30	Multiple Choice	A	1	NGLS.Math.Content.NY-7.EE.4b	Expressions and Equations		0.28		
31	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.3	The Number System		0.70		
<b>Session 2</b>									
33	Multiple Choice	D	1	NGLS.Math.Content.NY-7.NS.1a	The Number System		0.78		
34	Multiple Choice	B	1	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships		0.75		
35	Multiple Choice	B	1	NGLS.Math.Content.NY-7.SP.3	Statistics and Probability		0.63		
36	Multiple Choice	B	1	NGLS.Math.Content.NY-7.NS.3	The Number System		0.55		
37	Multiple Choice	C	1	NGLS.Math.Content.NY-7.EE.1	Expressions and Equations		0.60		
38	Multiple Choice	C	1	NGLS.Math.Content.NY-7.RP.2b	Ratios and Proportional Relationships		0.65		
39	Constructed Response	n/a	1	NGLS.Math.Content.NY-7.RP.2c	Ratios and Proportional Relationships			0.31	0.31
40	Constructed Response	n/a	1	NGLS.Math.Content.NY-7.NS.2c	The Number System			0.81	0.81
41	Constructed Response	n/a	1	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships			0.33	0.33
42	Constructed Response	n/a	2	NGLS.Math.Content.NY-7.NS.1d	The Number System	NGLS.Math.Content.NY-7.NS.1b		1.21	0.60
43	Constructed Response	n/a	2	NGLS.Math.Content.NY-7.RP.1	Ratios and Proportional Relationships			1.20	0.60
44	Constructed Response	n/a	2	NGLS.Math.Content.NY-7.G.1	Geometry			1.43	0.72
45	Constructed Response	n/a	2	NGLS.Math.Content.NY-7.EE.4a	Expressions and Equations			1.33	0.67
46	Constructed Response	n/a	2	NGLS.Math.Content.NY-7.EE.1	Expressions and Equations			0.76	0.38
47	Constructed Response	n/a	2	NGLS.Math.Content.NY-7.SP.8a	Statistics and Probability			0.73	0.36
48	Constructed Response	n/a	3	NGLS.Math.Content.NY-7.RP.3	Ratios and Proportional Relationships			0.75	0.25

\*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>	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.

\* 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).

#### **1-Credit Constructed-Response Mathematics Scoring Policies (2024)**

1. The student is **not** required to show work for a 1-credit constructed-response question, therefore, any work shown will **not** be scored. A clearly identified correct response should still receive full credit.
2. If the student clearly identifies a correct answer but fails to write that answer in the answer space, the student should still receive full credit.
3. If the student provides one legible response (and one response only), the rater should score the response, even if it has been crossed out.
4. 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.
5. If the student provides more than one response but does not indicate which response is to be considered the correct response and none have been crossed out, the student shall not receive credit.
6. If the student does not provide the answer in the form as directed in the question, the student will not receive credit.
7. In questions requiring number sentences, the number sentences must be written horizontally.
8. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.
9. 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.

## **2- and 3-Credit Constructed-Response Mathematics Scoring Policies (2024)**

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 questions that do **not** ask for any work and questions 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 have been crossed out, the student shall not receive full credit.
8. Trial-and-error responses are **not** subject to Scoring Policy #6 above, since crossing out is part of the trial-and-error process.
9. 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.
10. In questions requiring number sentences, the number sentences must be written horizontally.
11. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.
12. 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.

**39**

Marty types at an average rate of 25 words per minute. Write an equation that could be used to determine the average number of words,  $w$ , Marty types in  $t$  minutes.

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

## EXEMPLARY RESPONSE

39

Marty types at an average rate of 25 words per minute. Write an equation that could be used to determine the average number of words,  $w$ , Marty types in  $t$  minutes.

*Answer* Equation  $w = 25t$  OR  $25t = w$  OR  $w/t = 25$

# GUIDE PAPER 1

Additional

39

Marty types at an average rate of 25 words per minute. Write an equation that could be used to determine the average number of words,  $w$ , Marty types in  $t$  minutes. [1]

$$25t = w$$

Answer Equation 25t = w

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

A correct answer is provided.

## GUIDE PAPER 2

39

Marty types at an average rate of 25 words per minute. Write an equation that could be used to determine the average number of words,  $w$ , Marty types in  $t$  minutes.

$$25t = w$$

Answer Equation

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

A correct answer is provided.

## GUIDE PAPER 3

39

Marty types at an average rate of 25 words per minute. Write an equation that could be used to determine the average number of words,  $w$ , Marty types in  $t$  minutes.

$$W \times T = 25$$

Answer Equation

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

An incorrect answer is provided.

**40**

What is the value of the expression  $-2(-3)(4)$ ?

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

## EXEMPLARY RESPONSE

40

What is the value of the expression  $-2(-3)(4)$ ?

*Answer* 24

# GUIDE PAPER 1

Additional

40

What is the value of the expression  $-2(-3)(4)$ ?

$$-2 (-3)(4)$$

PEMDAS: first thing is ()  
 $-3 \times 4 =$   
-12  
 $-2 \times -12$   
= 24  
The value of the expression is 24.  
A negative multiplied by a negative is a positive.

*Answer*

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

A correct answer is provided.

## GUIDE PAPER 2

40

What is the value of the expression  $-2(-3)(4)$ ?

$$\begin{aligned} -2 \times -3 \\ = 6 \\ 6 \times 4 = \\ 24 \end{aligned}$$

*Answer*

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

A correct answer is provided.

## GUIDE PAPER 3

40

What is the value of the expression  $-2(-3)(4)$ ?

$$\begin{aligned}-2(-3)(4) &= \\ -24\end{aligned}$$

*Answer*

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

An incorrect answer is provided.

41

Kenneth bought a shirt that was originally priced at \$55.00. After a discount, he paid \$38.50. What was the percent discount of the original price of the shirt?

Answer \_\_\_\_\_ %

## EXEMPLARY RESPONSE

41

Kenneth bought a shirt that was originally priced at \$55.00. After a discount, he paid \$38.50. What was the percent discount of the original price of the shirt?

Answer 30 %

# GUIDE PAPER 1

Additional

41

Kenneth bought a shirt that was originally priced at \$55.00. After a discount, he paid \$38.50. What was the percent discount of the original price of the shirt? [1]

$$\frac{\text{difference}}{\text{original}} = \frac{\%}{100}$$

~~$$\frac{16.50}{55.00} = \frac{x}{100}$$~~

~~$$\begin{array}{r} +16.50 \\ 55.00 \\ \hline -38.50 \\ \hline 16.50 \end{array}$$~~

$$16.50 \cdot 100 = 1650$$
$$55.00 \cdot x = 55.00x$$
$$\frac{1650}{55.00} = \underline{\underline{30}}$$

percent discount

=

30 %.

Answer 30 %

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

A correct answer is provided.

## GUIDE PAPER 2

41

Kenneth bought a shirt that was originally priced at \$55.00. After a discount, he paid \$38.50. What was the percent discount of the original price of the shirt?

Answer

30

%

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

A correct answer is provided.

## GUIDE PAPER 3

41

Kenneth bought a shirt that was originally priced at \$55.00. After a discount, he paid \$38.50. What was the percent discount of the original price of the shirt?

*Answer*

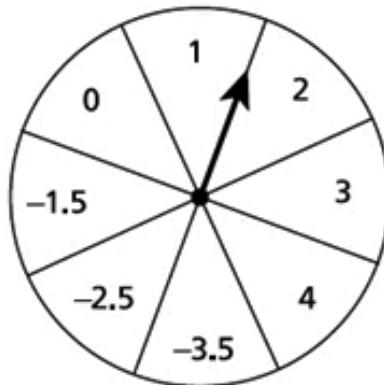
$$\begin{array}{r} 55.00 + \\ 38.50 = 93.5 \end{array}$$

%

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

An incorrect answer is provided.

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

---

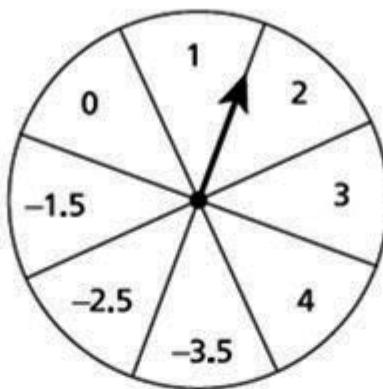
---

---

## EXEMPLARY RESPONSE

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

The spinner would need to land on the numbers 1 and 2 for the two spins, OR, on the numbers 0 and 3.

I determined my answer by first finding the sum of the first three spins, which is  $-1.5 + 2 + -3.5 = -3$ . The numbers from the remaining two spins would need to have a sum that is equal to +3, since  $-3 + 3 = 0$ .

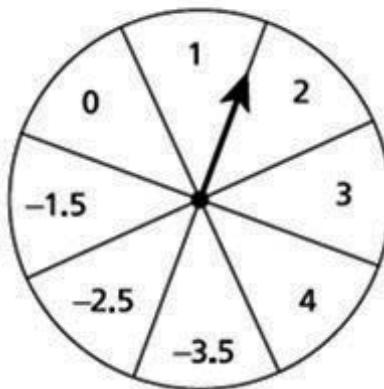
*OR other valid explanation.*

# GUIDE PAPER 1

Additional

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

$$-1.5 + 2 + -3.5 = -3$$

He would need to land on three and then zero, because the first three spins added up were -3 so if you add 3 to -3 it becomes 0. Then to keep the score at zero you need to add zero.

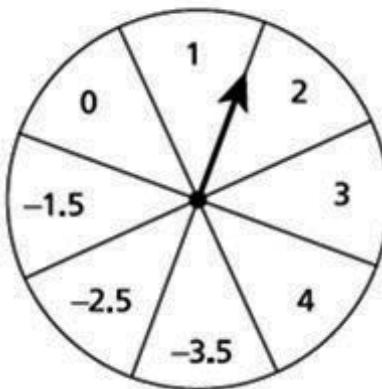
## Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Two correct spin values are identified, and a correct explanation is provided to demonstrate understanding that opposite quantities combine to make zero. This response is complete and correct.

## GUIDE PAPER 2

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

Frank would need to land on the numbers 1 and 2 or 0 and 3 because  $-1.5+2+-3.5 = -3$  and -3 is 3 spots away from zero so the two numbers he adds together need to equal the absolute value.

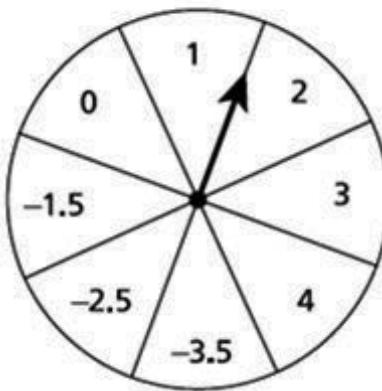
### Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Two correct spin values are identified, and a correct explanation is provided to demonstrate understanding that a negative quantity and its absolute value combine to make zero. This response is complete and correct.

## GUIDE PAPER 3

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

Frank has to land on 1 and 2 or 0 and 3 for Frank's final score to equal to 0. Frank needs to land one of this pair of numbers so that his final score to equal to 0 because  $-1.5+2+-3.5=-3$  to be able to get rid of the negative 3 you will need to add the negative 3 with the opposite of negative 3 :positive 3.  
 $1+2=$  positive 3 &  $0+3=$  positive 3

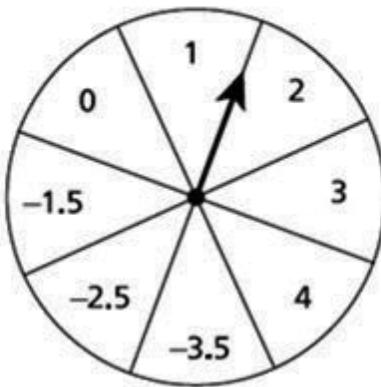
### Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Two correct spin values are identified, and a correct explanation is provided to demonstrate understanding that opposite quantities combine to make zero. This response is complete and correct.

## GUIDE PAPER 4

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

Frank would need to get his spin to land on 3 and 2 for his total to equal 0. The reason he needs to get 3 and 2 is because his current numbers are -3.5, -1.5, and 2 which equals -5, and  $5+5=0$ .

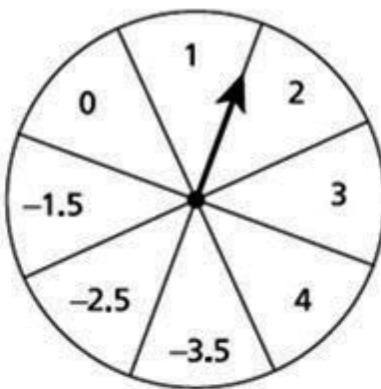
### Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A computational error was made, showing a score of -5 after the first three spins. The rest of the explanation demonstrates understanding that opposite quantities combine to make zero. This response contains an incorrect solution but applies a mathematically appropriate process.

# GUIDE PAPER 5

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

$$-1.5 + 2 + -3.5 = -2$$

$$-2 + (2) = 0$$

$$(0) + (2) = 2$$

The final two numbers are the 0 and 2.

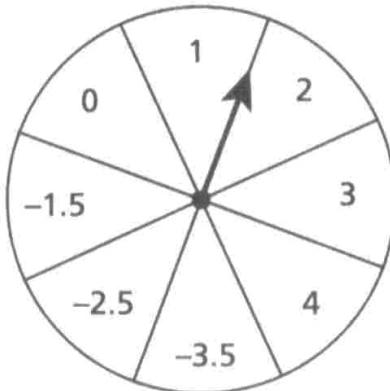
## Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A computational error was made, showing a score of -2 after the first three spins. The rest of the explanation demonstrates understanding that opposite quantities combine to make zero. This response contains an incorrect solution but applies a mathematically appropriate process.

# GUIDE PAPER 6

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

*3, because when you  $2 + (-1.5) + (-3.5)$   
it equals -3. So if he gets a  
3 it will equal 0.*

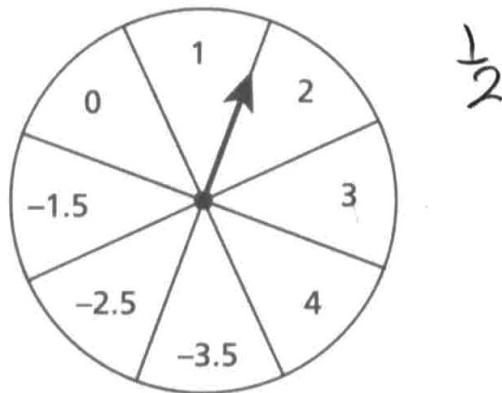
## Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Two correct spin values are not identified. An explanation is provided to demonstrate understanding that 3 is required to get to a total of zero. However, it is unclear if the 3 mentioned is one of the spin values, or the sum of the spin values. This response correctly addresses only some elements of the task.

# GUIDE PAPER 7

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

The two numbers would be 1 and 2  
because the arrow is between the  
two numbers.

## Score Credit 0 (out of 2 credits)

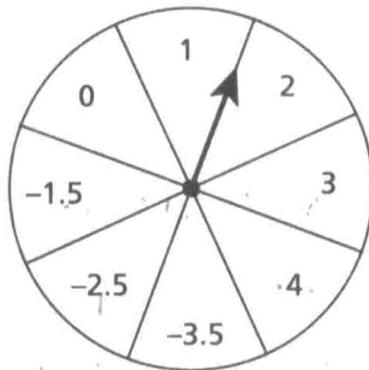
This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although two correct spin values are identified, the explanation is irrelevant. Holistically, the response is insufficient to show any understanding.

# GUIDE PAPER 8

Additional

42

Frank and his friends are playing a game with the spinner shown below.



Each player spins the arrow 5 times and adds all the numbers the spinner lands on to get their score. Frank's first three spins are listed below.

-1.5, 2, and -3.5

Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

*Explain your answer.*

Two of the remaining numbers would need to be -1.5. When you add up all the numbers that were landed on already, you get -3. So, in order to find the other two numbers you would need to divide -3 by 2.

$$-1.5 + 2 = 0.5$$

$$0.5 - 3.5 = -3$$

$$-3 \div 2 = -1.5$$

DO NOT WRITE BEYOND THIS AREA

## Score Credit 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The total after the first three spins is given, but nothing is mentioned relating to the +3 required to get to a total of zero. An incorrect procedure is then used to determine the incorrect solution. Holistically, this response shows no overall understanding of the task.

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

*Show your work.*

Answer \_\_\_\_\_ miles per hour

## EXEMPLARY RESPONSE

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

*Show your work.*

$$5.5 \div 2.2 = 2.5$$

*OR*

$$5\frac{1}{2} \div 2\frac{1}{5} = \frac{11}{2} \div \frac{11}{5} = \frac{55}{22} = 2\frac{1}{2}$$

*OR other valid process*

2.5 or  
**equivalent** miles per hour

*Answer*

# GUIDE PAPER 1

Additional

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

*Show your work.*

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

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

Answer

miles per hour

## Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Correct work is shown and the unit rate is calculated correctly. This response is complete and correct.

## GUIDE PAPER 2

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

Show your work.

$$5.5 \div 2.2 = 2.5 \text{ mph}$$

Answer 2.5mph miles per hour

**Score Credit 2 (out of 2 credits)**

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Correct work is shown and the unit rate is calculated correctly. This response is complete and correct.

## GUIDE PAPER 3

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

*Show your work.*

$$5\frac{1}{2} = 5.5$$

$$2\frac{1}{5} = 2.2$$

$$5.5 \div 2.2 = 2.5$$

Answer

2.5

miles per hour

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. Correct work is shown and the unit rate is calculated correctly. This response is complete and correct.

## GUIDE PAPER 4

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

Show your work.

$$\begin{aligned}5\frac{1}{2} &= 5.5 \\2\frac{1}{2} &= 2.5 \\\frac{5.5}{2.5} &= \frac{x}{1} \\\frac{2.5x}{2.5} &= \frac{5.5}{2.5} \\x &= 2.2\end{aligned}$$

Answer

She rode 2.2

miles per hour

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although a transcription error occurred, the rest of the work was carried out appropriately for the values used. This response contains an incorrect solution but applies a mathematically appropriate process.

## GUIDE PAPER 5

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

*Show your work.*

$$5\frac{1}{2} \div 2\frac{1}{5} = 2\frac{1}{2} = 25$$

*Answer*      He hiked 25 mph miles per hour

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The correct equation is shown, and the correct solution is shown in the equation. However, a conversion error occurred, and  $2\frac{1}{2}$  was incorrectly converted to 25. This response correctly addresses only some elements of the task.

## GUIDE PAPER 6

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

*Show your work.*

$$5\frac{1}{2} \div 2\frac{1}{5} = 2\frac{1}{4}$$

Answer 2 $\frac{1}{4}$  miles per hour

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct division expression is shown in the equation, but a computational error is made. This response contains an incorrect solution but applies a mathematically appropriate process.

## GUIDE PAPER 7

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

*Show your work.*

$$5 \frac{1}{2} - 2 \frac{1}{5} = 3 \frac{3}{10}$$

Answer 3  $\frac{3}{10}$  miles per hour

**Score Credit 0 (out of 2 credits)**

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Subtraction is inappropriately used to determine the unit rate. Holistically, the explanation is insufficient to show any understanding.

# GUIDE PAPER 8

Additional

43

Joann went for a hike. The trail she hiked was  $5\frac{1}{2}$  miles and it took her  $2\frac{1}{5}$  hours to complete. If Joann hiked at an average unit rate, how fast, in miles per hour, did Joann hike?

Show your work.

3 feet in one yard. 400 yards in one lap. So 1,600 yards in a mile. 1600 times 5= 8000

Half a mile is 2 laps. 400 in one. so 800 in two.  $8000 + 800 = 8,800$

She ran 2 hours 12 min. So 132 mintues in total.

8,800 divide by 132 equal

Answer

5 miles

miles per hour

## Score Credit 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 procedure is used to determine an incorrect solution. Holistically, the explanation is insufficient to show any understanding.

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

*Show your work.*

Answer \_\_\_\_\_ centimeters

## EXEMPLARY RESPONSE

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$\frac{1 \text{ cm}}{50 \text{ miles}} = \frac{x \text{ cm}}{225 \text{ miles}}$$

$$225 = 50x$$

$$x = 4.5$$

OR other valid process

Answer 4.5 centimeters

# GUIDE PAPER 1

Additional

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$\begin{aligned}\frac{1}{50} &= \frac{x}{225} \\ 1(225) &= 50x \\ 225 &= 50x \\ 4.5 &= x\end{aligned}$$

Answer

4.5

centimeters

## Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct process is shown, and the correct solution is determined. This response is complete and correct.

## GUIDE PAPER 2

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$\begin{aligned}1\text{cm} &= 50\text{mi} \\2\text{cm} &= 100\text{mi} \\3\text{cm} &= 150\text{mi} \\4\text{cm} &= 200\text{mi} \\4 \frac{1}{2} \text{ cm} &= 225\end{aligned}$$

the distance  
between the  
two cities is 4  
 $\frac{1}{2}$  cm on the  
map

Answer

centimeters

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct process using repeated addition is shown, and the correct solution is determined. This response is complete and correct.

## GUIDE PAPER 3

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$1 \text{ cent} = 50 \text{ miles}$$

New York City and Washington, D.C. = 225 miles

$$225 - 50 - 50 - 50 - 50 = 25$$

$$x = 4.5$$

Answer

4.5

centimeters

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct process using repeated subtraction is shown, and the correct solution is determined. This response is complete and correct.

## GUIDE PAPER 4

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$4 \times 1 = 4 \quad 25 \text{ miles} = .5 \text{ centimeters}$$

Answer

4.5

centimeters

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. An equation is provided, but it is not clear what this equation represents. The fraction of a centimeter required for the 25 miles is provided, and the correct solution is determined. This response contains the correct solution, but the required work is incomplete.

## GUIDE PAPER 5

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$255/50=5.1$$

Answer 5.1 cm centimeters

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct process of division is shown; however, a transcription error occurs. The division is performed correctly for the values used, and the result is given as the solution. This response contains an incorrect solution but applies a mathematically appropriate process.

## GUIDE PAPER 6

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$225 \times 2 = 450$$

$$50 \times 9 = 450$$

9

Answer

centimeters

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The 225 mile distance is doubled, and the provided solution of 9 is correctly determined based on the doubled distance. This response correctly addresses only some elements of the task.

## GUIDE PAPER 7

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

$$225 \times 50 = 11250 \text{ cm}$$

Answer

11250 cm

centimeters

**Score Credit 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 determine an incorrect solution. Holistically, this response shows no overall understanding of the task.

# GUIDE PAPER 8

Additional

44

A map has a scale of 1 centimeter = 50 miles. The actual distance between New York City and Washington, D.C., is 225 miles. What is the distance, in centimeters, between the two cities on the map?

Show your work.

The distance in centimeters is 36210240

3.6210240

Answer

centimeters

## Score Credit 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 of converting the distance in miles to centimeters is used to determine an incorrect solution. Holistically, this response shows no overall understanding of the task.

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

*Show your work.*

Answer \_\_\_\_\_ roast beef sandwiches

## EXEMPLARY RESPONSE

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

*Show your work.*

$$4.99(25) + 4.99r = 219.56$$

$$124.75 + 4.99r = 219.56$$

$$4.99r = 94.81$$

$$r = 94.81 \div 4.99$$

$$r = 19$$

*OR other valid process.*

Answer 19 roast beef sandwiches

# GUIDE PAPER 1

Additional

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

Show your work.

$$4.99(25 + x) = 219.56$$

$$\begin{array}{r} 124.75 + 4.99x = 219.56 \\ -124.75 \quad \quad \quad \underline{-124.75} \\ \hline 4.99x = 94.81 \end{array}$$

$$\frac{4.99x}{4.99} = \frac{94.81}{4.99}$$

$$x = 19$$

check

$$\begin{array}{rcl} 4.99(25 + 19) & ? & 219.56 \\ 4.99(44) & ? & 219.56 \\ 219.56 & \checkmark & 219.56 \end{array}$$

Answer 19 roast beef sandwiches

## Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of roast beef sandwiches sold is calculated correctly using sound procedures. The response is complete and correct.

## GUIDE PAPER 2

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

Show your work.

$$\text{Turkey} = 4.99 \cdot 25 = 124.75$$

$$\begin{array}{r} 118 \\ \times 9.56 \\ \hline -124.75 \\ 94.81 \end{array} \text{ total roast beef}$$

Amount of roast beef sandwiches sold:

$$94.81 \div 4.99 = 19$$

Answer 19 roast beef sandwiches

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of roast beef sandwiches sold is calculated correctly using sound procedures. The response is complete and correct.

## GUIDE PAPER 3

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

Show your work.

$$\$219.56 \div 4.99 = 44 \text{ total sandwiches sold}$$

$$\begin{array}{r} - 44\text{total} \\ - 25\text{turkey} \\ \hline 19 \text{ roast beef} \end{array}$$

1  
2  
3  
4

Answer

19

roast beef sandwiches

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of roast beef sandwiches sold is calculated correctly using sound procedures. The response is complete and correct.

## GUIDE PAPER 4

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

Show your work.

$$\begin{array}{r} 25 \\ \times 4.99 \\ \hline 119.76 \end{array}$$

$$\begin{array}{r} 219.56 \\ - 119.76 \\ \hline 99.80 \end{array}$$

$$4.99 \overline{)99.80}$$

Answer 20 roast beef sandwiches

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The total cost of the turkey sandwiches is determined, but a computational error occurred. The rest of the process is performed correctly for the values used. This response contains an incorrect solution but applies a mathematically appropriate process.

## GUIDE PAPER 5

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

Show your work.

$$25 + 4.99 = 124.75$$

$$\begin{array}{r} 1218.56 \\ -124.75 \\ \hline 94.81 \end{array}$$

$$219.56 - 124.75 = 94.81$$

Answer 94.81 roast beef sandwiches

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The total cost of the turkey sandwiches is determined, and then subtracted from the total cost. The final step of dividing this cost by the sandwich price is not performed, and an incorrect solution is provided. This response correctly addresses only some elements of the task.

# **GUIDE PAPER 6**

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

*Show your work.*

$$\begin{array}{r}
 47 \\
 \times 25 \\
 \hline
 225 \\
 225x \\
 \hline
 2775
 \end{array}$$

$$\begin{array}{r} 118.15 \\ - 84.56 \\ \hline - 127.75 \\ 91.81 \end{array}$$

$$\begin{array}{r} \underline{\underline{223}} \\ + 225x \\ \hline 100xx \\ \hline 12775 \end{array}$$

$$\begin{array}{r}
 499 \\
 + 499 \\
 \hline
 998 \\
 + 499 \\
 \hline
 1497
 \end{array}
 \quad
 \begin{array}{r}
 66 \\
 \times 7 \\
 \hline
 3493
 \end{array}$$

$$\begin{array}{r} 88 \\ \times 499 \\ \hline 4491 \end{array}$$

$$499 \overline{)998} \begin{matrix} 1 \\ 18 \\ 18 \\ 00 \end{matrix}$$

$$\begin{array}{r}
 -499 \\
 \hline
 34\overline{)499} \\
 -3992 \\
 \hline
 100 \\
 \hline
 -1497 \\
 \hline
 483 \\
 \hline
 -4491 \\
 \hline
 439
 \end{array}$$

### *Answer*

18

## roast beef sandwiches

**Score Credit 1 (out of 2 credits)**

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The total cost of the turkey sandwiches is determined, but a computational error is made resulting in an incorrect solution. This response contains an incorrect solution but applies a mathematically appropriate process.

## GUIDE PAPER 7

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

Show your work.

$$219.56 \div 25 = 19$$

Answer

19

roast beef sandwiches

**Score Credit 0 (out of 2 credits)**

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

# **GUIDE PAPER 8**

## Additional

45

During lunch, a sandwich shop owner sold 2 types of sandwiches: turkey and roast beef. Each sandwich cost \$4.99 and the total sales from all of the sandwiches sold was \$219.56. There were 25 turkey sandwiches sold. How many roast beef sandwiches were sold?

Show your work.

2 types

T - \$4.99		219.55	<u>\$5.50</u>
RB - \$4.99		= 194.565	
		219.55 - 15	
		219.55 - 194.56	
		= 25	

There are 25  
roast beef  
sandwiches.

### **Answer**

roast beef sandwiches

**Score Credit 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 solution is provided using an incorrect procedure. Holistically, this response shows no overall understanding of the task.

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer.

*Show your work.*

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

## EXEMPLARY RESPONSE

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer.

Show your work.

$$\begin{aligned} & -8(4 - x) + 20 \\ & (-8)(4) - (-8)(x) + 20 \\ & (-32) - (-8x) + 20 \\ & -32 + 8x + 20 \\ & -12 + 8x \end{aligned}$$

*OR other valid process*

*Answer*  $-12 + 8x$  OR equivalent

# GUIDE PAPER 1

Additional

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer.

Show your work.

-8(4-x)+20  
-32+8x+20  
-12+8x

Answer

-12+8x

## Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the concepts in the task. A correct equivalent expression as the sum of two unlike terms is determined using correct properties of operations. This response is complete and correct.

## GUIDE PAPER 2

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer. [2]

*Show your work.*

$$\begin{aligned}-8(4 - x) &= -8 \cdot 4 - x \cdot -8 \\&= (32 + 8x) + 20 \\&= 8x + 12\end{aligned}$$

*Answer*  $8x + 12$

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

This response demonstrates a thorough understanding of the concepts in the task. A correct equivalent expression as the sum of two unlike terms is determined using correct properties of operations. Although  $-8 \cdot 4 - x \cdot -8$  is stated to be equal to  $(-32 + 8x) + 20$  in the work, it does not detract from the demonstration of understanding of the concepts in the task. This response contains sufficient work to demonstrate a thorough understanding.

## GUIDE PAPER 3

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer.

*Show your work.*

$$\begin{aligned}-8(4 - x) + 20 \\ -32 + 8x + 20 \\ -12 + 8x\end{aligned}$$

*Answer*

$$-12 + 8x$$

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

This response demonstrates a thorough understanding of the concepts in the task. A correct equivalent expression as the sum of two unlike terms is determined using correct properties of operations. This response is complete and correct.

## GUIDE PAPER 4

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer.

Show your work.

$$\begin{aligned}-8(4-x)+20 \\ -32+8x+20 \\ -12+8x\end{aligned}$$

Answer

$$-4x$$

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. Although a correct equivalent expression as the sum of two unlike terms is determined using correct properties of operations, and is shown in the work area, when entering into the answer line, unlike terms are inappropriately combined, resulting in an incorrect solution. This response correctly addresses some elements of the task.

## GUIDE PAPER 5

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer.

Show your work.

$$\begin{aligned}-8(4-x)+20 \\ -32+8x+20\end{aligned}$$

Answer

$$-12 + 8$$

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The distribution is performed correctly. However, the “ $x$ ” variable disappeared, resulting in an incorrect solution. This response correctly addresses some elements of the task.

## GUIDE PAPER 6

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer. [2]

Show your work.

$$-8(\overbrace{4-x})+20$$

$$-32 \overbrace{+x} +20$$

$$\begin{array}{r} \\ -32 \end{array}$$

$$\begin{array}{r} +20 \\ \hline -12 \end{array}$$

Answer  $x - 12$

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The distribution of the  $-8$  is only partially correct. Though like terms are combined correctly, the result is an incorrect solution. This response correctly addresses only some elements of the task.

## GUIDE PAPER 7

46

$$\begin{array}{r} 4x \\ - 4 + 8x \\ \hline \end{array}$$

Write the expression  $-8(4 + x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer. [2]

Show your work.

$$-4x + 20$$

Answer  $4x + 20$

**Score Credit 0 (out of 2 credits)**

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The distribution was performed incorrectly, and unlike terms are inappropriately combined. Holistically, this response shows no overall understanding of the task.

# GUIDE PAPER 8

Additional

46

Write the expression  $-8(4 - x) + 20$  as the sum of two unlike terms. Be sure to show the use of the properties of operations in your answer. [2]

Show your work.

$$\begin{array}{r} -8(4-x)+20 \\ +4 \quad 4 \\ \hline -4 = x + 20 \end{array}$$

?? what

Answer  $-4 = x + 20$

## Score Credit 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 procedure is used to determine an incorrect solution. Holistically, this response shows no overall understanding of the task.

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

*Show your work.*

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

## EXEMPLARY RESPONSE

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.

$$P(\text{comedy}) = \frac{1}{3}$$

$$P(\text{chips}) = \frac{1}{3}$$

$$P(\text{juice}) = \frac{1}{2}$$

$$\frac{1}{3} \times \frac{1}{3} \times \frac{1}{2} = \frac{1}{18}$$

OR other valid process

Answer \_\_\_\_\_

$\frac{1}{18}$

# GUIDE PAPER 1

Additional

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.

$$\frac{1}{3} \times \frac{1}{3} \times \frac{1}{2} = \frac{1}{18}$$

$$\frac{1}{18}$$

Answer

## Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The joint probability is correctly determined, and a correct process is shown. This response is complete and correct.

## GUIDE PAPER 2

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.

DPW	APW	CPW	
DCHW	ACHW	CCHW	
DCAW	ACAW	CCAW	$\frac{1}{18}$
DPJ	APJ	CPJ	
DCHJ	ACHJ	CCHJ	
DCAJ	ACAJ	CCANJ	

$\frac{1}{18}$

Answer

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The joint probability is correctly determined, and a correct process is shown. Although the last combination contains a typo (CCANJ), it does not detract from the demonstration of a thorough understanding of the concepts in the task. This response contains sufficient work to demonstrate a thorough understanding.

# GUIDE PAPER 3

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.

$$3 \times 3 \times 2 = 18 \text{ different possibilities}$$

↓      ↓      ↓  
movies    snacks    drinks

↓

Comedy, chips, & juice is  
just one of the possibilities

↓

$$\frac{1}{18} \rightarrow \text{Jonah's option}$$
$$\rightarrow \text{total possibilities}$$

Answer  $\frac{1}{18}$

## Score Credit 2 (out of 2 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The joint probability is correctly determined, and a correct process is shown. This response is complete and correct.

## GUIDE PAPER 4

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.

$$3+3+2=8$$

movies-  $\frac{1}{3}$

snacks-  $\frac{1}{3}$

drinks-  $\frac{1}{2}$

Answer

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The counts of each choice for one type of movie, one type of snack, and one type of drink are inappropriately added together. Although the individual probabilities are correctly identified, they are not multiplied, and these probabilities are inappropriately provided as the solution. This response correctly addresses only some elements of the task.

# **GUIDE PAPER 5**

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
  - Snacks: popcorn, chips, candy
  - Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

*Show your work.*



$$\begin{array}{r} 3 \\ \hline 54 \end{array}$$

### **Answer**

**Score Credit 1 (out of 2 credits)**

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. All possible combinations are correctly identified, and a correct equivalent solution is provided; however, an incorrect procedure of multiplying the total number of combinations by three is used, and it is not clear from the work what the fraction  $\frac{3}{54}$  represents. This response correctly addresses only some elements of the task.

# GUIDE PAPER 6

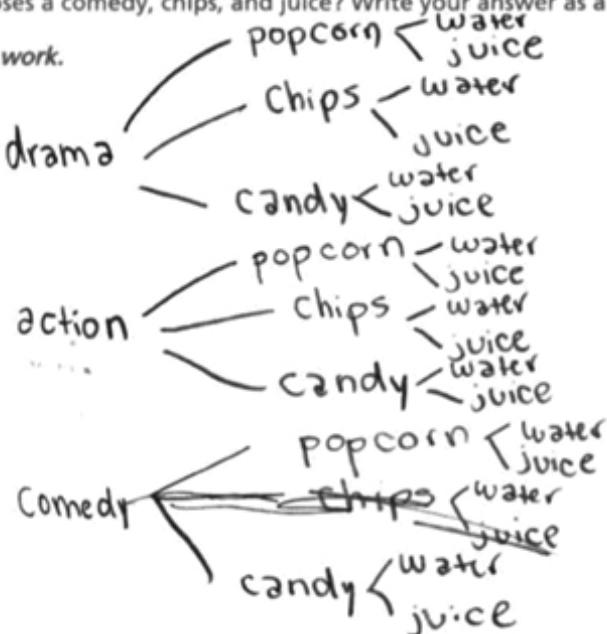
47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.



Answer  $\frac{1}{18}$  chance

## Score Credit 1 (out of 2 credits)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. All possible combinations are correctly identified; however, a counting error occurred when determining the total number of combinations, resulting in an incorrect solution. This response correctly addresses only some elements of the task.

## GUIDE PAPER 7

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.



$$\frac{3}{12} = \frac{1}{4}$$

Answer

$$\frac{1}{4}$$

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

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. This response contains an incorrect solution using an obviously incorrect procedure. Holistically, the response is insufficient to show any understanding.

# GUIDE PAPER 8

Additional

47

Jonah received a gift card to a movie theater. The gift card allows him to choose one type of movie, one snack, and one drink. His options are shown in the list below.

- Movies: drama, action, comedy
- Snacks: popcorn, chips, candy
- Drinks: water, juice

He chooses one movie, one snack, and one drink at random. What is the probability that Jonah chooses a comedy, chips, and juice? Write your answer as a fraction.

Show your work.

$$\frac{3}{7} = \frac{x}{100} \quad \frac{300}{7} = \frac{7x}{7}$$
$$x = 42\frac{6}{7}\%$$

Answer

$$\underline{42\frac{6}{7}\%}$$

## Score Credit 0 (out of 2 credits)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. This response contains an incorrect solution using an obviously incorrect procedure. Holistically, the response is insufficient to show any understanding.

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

*Show your work.*

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

## EXEMPLARY RESPONSE

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

*Show your work.*

**Discounted price of sofa including tax:**

$$460 \times 1.08 = \$496.80$$

**Original price of sofa:**

$$\frac{460}{x} = \frac{80}{100}$$

$$80x = 46,000$$

$$x = 575$$

**Original price of sofa including tax:**

$$575 \times 1.08 = \$621$$

$$621 - 496.80 = \$124.20$$

*OR other valid process*

*Answer \$* 124.20

# GUIDE PAPER 1

Additional

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

originally priced sofa

$$160 - 20 = 80$$

$$\frac{460}{x} \times \frac{80}{100}$$

$$\frac{80x}{80} = \frac{46,000}{80}$$

$$x = 575$$

$$575 \times 1.08 = 621$$

discounted sofa

$$460 \times 1.08 = 496.8$$

$$\begin{array}{r} 621 \\ - 496.8 \\ \hline \$124.20 - \text{He saves} \end{array}$$

Answer \$ 124.20

## Score Credit 3 (out of 3 credits)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The discounted and the original prices of the sofa including tax are correctly calculated, and the difference between the two prices is correctly determined. This response is complete and correct.

## GUIDE PAPER 2

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

$$\begin{array}{r} 460 \\ \times 0.20 \\ \hline 920 \\ \end{array}$$
$$\begin{array}{r} 460 \\ \times 0.08 \\ \hline 36.8 \\ \end{array}$$
$$\begin{array}{r} 460 \\ - 36.8 \\ \hline 421 \\ \end{array}$$

$$\begin{array}{r} 460 \\ + 36.8 \\ \hline 496.8 \\ \end{array}$$

$$\begin{array}{r} 621 \\ - 496.8 \\ \hline 124.2 \\ \end{array}$$

Answer \$ 124.20

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The discounted and the original prices of the sofa including tax are correctly calculated, and a correct solution is provided. Although the subtraction is not shown in the work, this response contains sufficient work to demonstrate a thorough understanding.

## GUIDE PAPER 3

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

$$460 \div 0.8 = 575 \quad 575 \times 1.08 = 621$$
$$460 \times 1.08 = 496.8 \quad 621 - 496.8 = 124.2$$

Answer \$ 124.20

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

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The discounted and the original prices of the sofa including tax are correctly calculated, and the difference between the two prices is correctly determined. This response is complete and correct.

## GUIDE PAPER 4

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

$$\frac{80}{100} = \frac{460}{x}$$

$$\begin{array}{r} 80 \\ \times 4600 \\ \hline 480 \\ 80 \\ \hline 32000 \end{array}$$

$$x = 600$$

$$\begin{array}{r} 5 \\ 648.10 \\ - 496.8 \\ \hline 151.2 \end{array}$$

$$\begin{array}{r} 600 \\ 80 \\ \hline 4600 \\ - 460 \\ \hline 0 \\ + 80 \\ \hline 460 \end{array}$$

$$460 \times 0.08 = 36.8$$

$$600 \times 0.08$$

$$\begin{array}{r} 460.0 \\ + 36.8 \\ \hline 496.8 \end{array}$$

Answer \$ 151.20

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The discounted price of the sofa including tax is correctly determined; however, a computational error is made when calculating the original price of the sofa before tax. The result is correctly used to determine the original price including tax and the difference between the original and discounted prices including tax. This response contains an incorrect solution but applies a mathematically appropriate process.

## GUIDE PAPER 5

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

$$\begin{aligned}460/x &= 80/100 \\80x/80x &= 46000/80x \\x &= 575 \\x/575 &= 8/100 \\100x/100x &= 4600/100x \\x &= 46\end{aligned}$$

$$\begin{aligned}575 + 46 &= 621 \\x/460 &= 8/100 \\100x/100x &= 3680/100x \\460 + 36.8 &= 533.6 \\621 - 533.6 &= \end{aligned}$$

Answer \$ 87.4

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The original price of the sofa including tax is correctly determined; however, the discounted price including tax is incorrectly determined. The difference between the prices obtained is correctly determined and provided as the solution. This response appropriately addresses most, but not all, aspects of the task.

## GUIDE PAPER 6

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

$$\text{original price} = (460 \times 1.2) \times 1.08$$

$$\text{discounted price} = 460 \times 1.08$$

$$460 \times 1.2 = 552$$

$$552 \times 1.08 = 596.16$$

$$460 \times 1.08 = 496.8$$

$$\text{original price} = 596.16$$

$$\text{discounted price} = 496.8$$

$$596.16 - 496.8 = 99.36$$

Answer \$ 99.36

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

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The discounted price of the sofa including tax is correctly determined. The original price of the sofa is incorrectly determined. The result is correctly used to determine the original price of the sofa including tax and the difference between the original and discounted prices including tax. This response appropriately addresses most, but not all, aspects of the task.

## GUIDE PAPER 7

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

$$460 \div .8 = 575$$

$$575 \times .08 = 46$$

$$575 - 460 = 115$$

$$115 - 46 = 69$$

Answer \$

69

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

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. The original price of the sofa is correctly determined. Although the tax on the original price is correctly calculated, the tax on the discounted price is not addressed, and the tax on the original price is inappropriately subtracted from the difference between the original and discounted prices before tax. This response addresses some elements of the task correctly, but reaches an inadequate solution using faulty reasoning.

# GUIDE PAPER 8

Additional

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

$$460 \times 20 = 9200 \div 100 = 92 \quad 460 - 92 = 368 \times 8 = 2944 \div 100 = \\ 29.44 \quad 368 + 29.44 = 397.44 \quad 460 - 397.44 = 62.56$$

Answer \$

62.56

## Score Credit 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. The discounted price is used as the original price, and a new discounted price including tax is calculated. This new discounted price including tax is then subtracted from the original discounted price before tax, and the result is provided as the solution. This response addresses some elements of the task correctly but exhibits multiple flaws related to misunderstanding of important aspects of the task.

# GUIDE PAPER 9

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

<u>Original</u> $\begin{array}{r} 460. \quad 460 \quad 552 \\ \times 0.2 \quad + 92 \quad \times 0.08 \\ \hline 92 \quad 552 \quad 44.16 \\ \end{array}$ $\begin{array}{r} 562 \\ + 44.16 \\ \hline 596.16 \end{array}$	<u>Discount</u> $\begin{array}{r} 460 \quad 460 \\ \times 0.08 \quad + 36.8 \\ \hline 36.8 \quad 496.8 \\ \end{array}$
$\begin{array}{r} 596.16 \\ - 496.8 \\ \hline 99.32 \end{array}$	

Answer \$ 99.32

## Score Credit 1 (out of 3 credits)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. The discounted price of the sofa including tax is correctly determined. The original price of the sofa before tax is incorrectly determined. The result is used to determine the original price of the sofa including tax. A transcription error occurs when calculating the difference between the original and discounted prices including tax. This response addresses some elements of the task correctly but exhibits multiple flaws related to misunderstanding of important aspects of the task.

## GUIDE PAPER 10

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

:original price:  
 $\$460 \times .20 = 920$   
 $920 - 460 = 460$   
 $460 \div .08 = 36.8$

Answer \$

460

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

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The original price is calculated incorrectly using an incorrect process. Although a correct tax for the discounted price is shown, the original and discounted prices including tax are not calculated, and the difference between the calculated original and the discounted prices before tax is calculated and provided as an incorrect solution. This response is incoherent, and, holistically, is insufficient to show any understanding.

# GUIDE PAPER 11

Additional

48

A furniture store is advertising a 20% discount on the price of sofas. Scott chooses a sofa with a discounted price of \$460.00. He must also pay an 8% sales tax. How much money will Scott save on the discounted sofa, including tax, compared to the originally priced sofa, including tax?

Show your work.

The student has written a division problem where the dividend is 460 and the divisor is 80. The quotient is 5 with a remainder of 60. Below the quotient, the student has written 56 and 40. A large arrow points from the bottom right towards the 40, likely indicating a mistake or a step in the process.

Answer \$575.00

**Score Credit 0 (out of 3 credits)**

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The original price is calculated using an incorrect process, the original and discounted prices including tax and the difference between the two prices are not calculated. This response is incorrect, and, holistically, is insufficient to show any understanding.