



***New York State
Testing Program***

2024

Mathematics Test

Grade 7

Scoring Leader Materials

Training Set

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

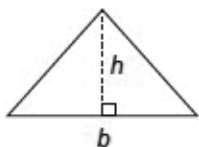
1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 1.609 kilometers
1 kilometer = 0.6214 mile

1 gallon = 3.785 liters
1 liter = 0.2642 gallon

1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds

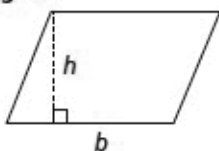
FORMULAS AND FIGURES

Triangle



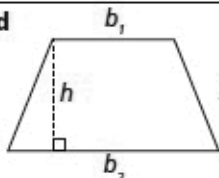
$$A = \frac{1}{2}bh$$

Parallelogram



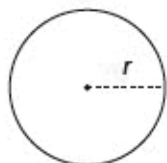
$$A = bh$$

Trapezoid



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

Circle



$$C = 2\pi r$$
$$C = \pi d$$
$$A = \pi r^2$$

Simple Interest

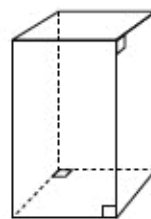
$$I = prt$$

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

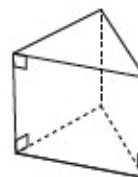
General Prism

$$V = Bh$$

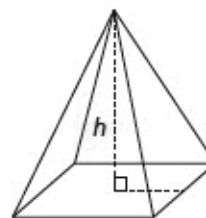
Right Rectangular Prism



Right Triangular Prism



Right Rectangular Pyramid



1-Credit Constructed-Response Rubric

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

2 Credits	<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">• indicates that the student has completed the task correctly, using mathematically sound procedures• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures• may contain inconsequential errors that do not detract from the correct solution and the demonstration of a thorough understanding
1 Credit	<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">• correctly addresses only some elements of the task• may contain an incorrect solution but applies a mathematically appropriate process• may contain the correct solution but required work is incomplete
0 Credits*	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

3 Credits	<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">• indicates that the student has completed the task correctly, using mathematically sound procedures• contains sufficient work to demonstrate a thorough understanding of the mathematical concepts and/or procedures• may contain inconsequential errors that do not detract from the correct solution(s) and the demonstration of a thorough understanding
2 Credits	<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">• appropriately addresses most but not all aspects of the task using mathematically sound procedures• may contain an incorrect solution but provides sound procedures, reasoning, and/or explanations• may reflect some minor misunderstanding of the underlying mathematical concepts and/or procedures
1 Credit	<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">• may address some elements of the task correctly but reaches an inadequate solution and/or provides reasoning that is faulty or incomplete• exhibits multiple flaws related to misunderstanding of important aspects of the task, misuse of mathematical procedures, or faulty mathematical reasoning• reflects a lack of essential understanding of the underlying mathematical concepts• may contain the correct solution(s) but required work is limited
0 Credits*	<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.

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 $w/t = 25$

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.

Answer Equation

$$25t = w$$

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.

Answer Equation

$$W \times T = 25$$

Score Credit 0 (out of 1 credit)

An incorrect answer is provided.

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

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

Answer

$$\begin{array}{l} -2(-3)(4)= \\ -24 \end{array}$$

Score Credit 0 (out of 1 credit)

An incorrect answer is provided.

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 %

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]

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

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

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

$$16.50 \cdot 100 = 1650$$

$$55.00 \cdot x = 55.00x$$

$$\frac{1650}{55.00} = 30$$

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 %

Score Credit 1 (out of 1 credit)

A correct answer is provided.

GUIDE PAPER 3

41

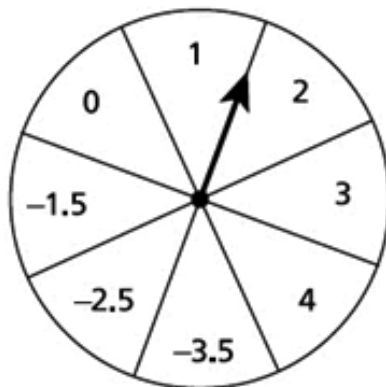
Kenneth bought a shirt that was originally priced at \$55.00. After a discount, he paid \$38.50. What was the percent discount of the original price of the shirt?

Answer
$$\frac{55.00 + 38.50}{55.00} = 93.5\%$$

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

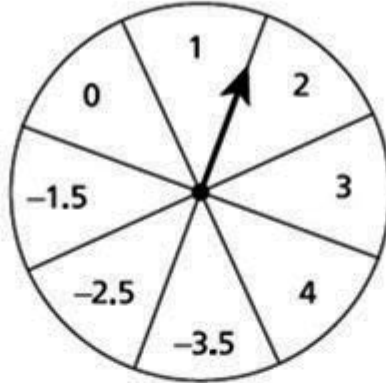
Frank has two more spins. What two numbers would the spinner need to land on for Frank's final score to equal 0?

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?

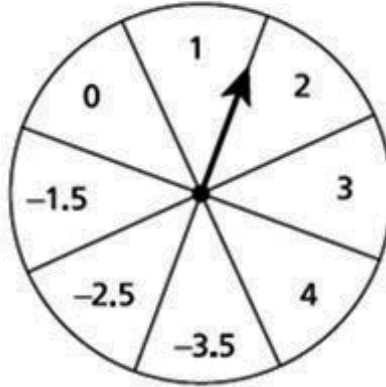
Explain your answer.

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.

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.

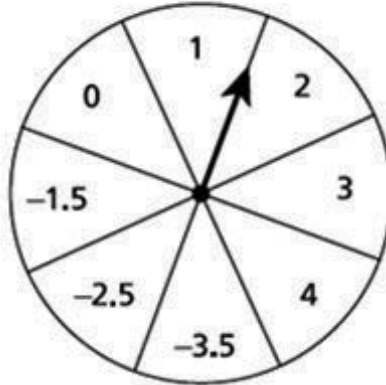
Score Credit 2 (out of 2 credits)

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.

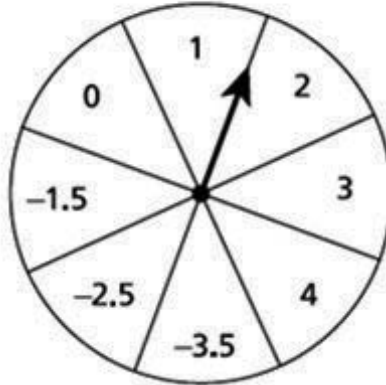
Score Credit 2 (out of 2 credits)

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 numbrs so that his final score to equal to 0 because $-1.5+2+-3.5=-3$ to be adle to get rid of the negative 3 you will need to add the negative 3 with the oppisite of negative 3 :positive 3. $1+2=$ positive 3 & $0+3=$ positive 3

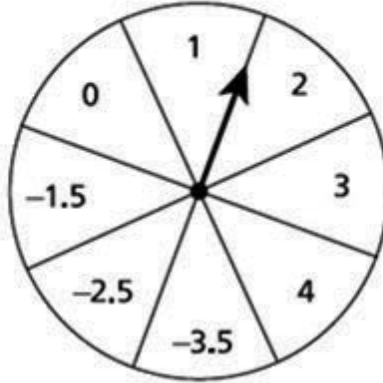
Score Credit 2 (out of 2 credits)

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 $5 + -5$ equals 0.

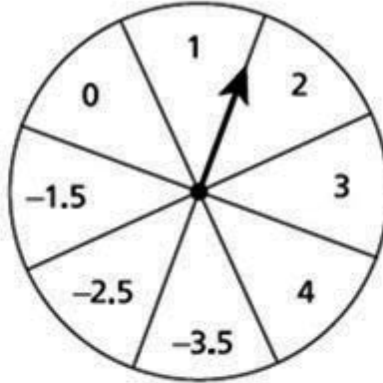
Score Credit 1 (out of 2 credits)

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.

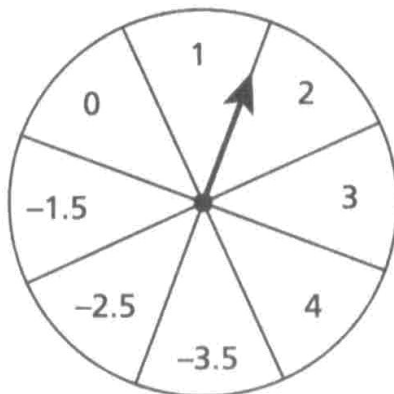
Score Credit 1 (out of 2 credits)

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.

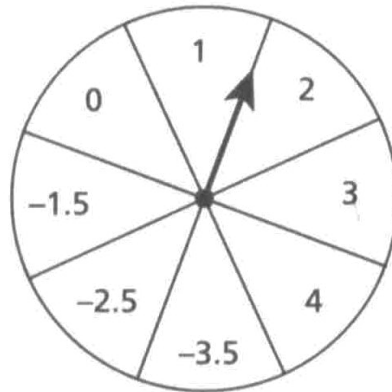
Score Credit 1 (out of 2 credits)

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?

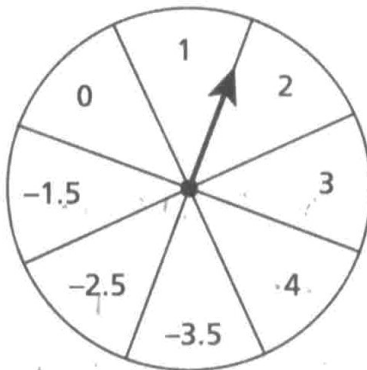
Explain your answer.

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.

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.

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
Answer miles per hour

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.

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

Answer

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

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 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.

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

$$2\frac{1}{5} = 2.5$$

$$\frac{5.5}{2.5} = \frac{x}{1}$$

$$\frac{2.5x}{2.5} = \frac{5.5}{2.5}$$

$$x = 2.2$$

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.

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 minutes in total.

8,800 divide by 132 equal

Answer 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

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 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.

1cm=50mi
2cm=100mi
3cm=150mi
4cm=200mi
 $4\frac{1}{2}$ cm=225

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.

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

$$\text{New York City and Washington, D.C.} = 225 \text{ miles}$$

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

$$x = 4.5$$

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 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 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 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.

$$225 \times 2 = 450$$

$$50 \times 9 = 450$$

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.

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

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.

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

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.

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

$$124.75 + 4.99x = 219.56$$

$$\begin{array}{r} -124.75 \\ \hline \end{array} \qquad \begin{array}{r} -124.75 \\ \hline \end{array}$$

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

$$x = 19$$

check

$$4.99(25 + 19) \stackrel{?}{=} 219.56$$

$$4.99(44) \stackrel{?}{=} 219.56$$

$$219.56 = 219.56$$

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.

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

$$\begin{array}{r} 11815 \\ 2 \times 4.99 \\ - 124.75 \\ \hline \end{array}$$

94.81 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.

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

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

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.

$$25 \times 4.99 = 124.75$$

$$\begin{array}{r} 219.56 \\ -124.75 \\ \hline 94.81 \end{array}$$

$$219.56 - 124.75 = 94.81$$

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.

Handwritten work showing calculations:

$$\begin{array}{r}
 49 \\
 \times 25 \\
 \hline
 225 \\
 + 2250 \\
 \hline
 1275
 \end{array}$$

$$\begin{array}{r}
 118.15 \\
 \times 4.99 \\
 \hline
 1181.56 \\
 - 127.75 \\
 \hline
 91.81
 \end{array}$$

$$\begin{array}{r}
 499 \\
 + 499 \\
 \hline
 998 \\
 + 499 \\
 \hline
 1497
 \end{array}$$

$$\begin{array}{r}
 66 \\
 \times 499 \\
 \hline
 3493 \\
 + 499 \\
 \hline
 3992
 \end{array}$$

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

$$\begin{array}{r}
 499 \overline{) 9181.00} \\
 \underline{- 499} \\
 3491 \\
 \underline{- 3492} \\
 1990 \\
 \underline{- 1497} \\
 4930 \\
 \underline{- 4491} \\
 439
 \end{array}$$

$$\begin{array}{r}
 11 \\
 4491 \\
 + 499 \\
 \hline
 4990
 \end{array}$$

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 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.

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.

Handwritten work showing calculations:

2 types
T - \$4.99
RB - \$4.99

219.56 (25 sold)
= 194.565
219.56 - 25
219.56 - 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.

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

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

$$\boxed{-12+8x}$$

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.

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

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.

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

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

$$\begin{array}{r} -12x \\ -4 + 8x \end{array}$$

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.

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

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.

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

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 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	

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. 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.

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

↓ ↓ ↓
movies snacks drinks

↓

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

↓

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

↓

$$\frac{1}{18} \rightarrow \text{total possibilities}$$

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.



$$\frac{3}{54}$$

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.



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

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.

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 = 7
- 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 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.

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

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.

<p style="text-align: center;"><u>originally priced sofa</u></p> $100 - 20 = 80$ $\frac{460}{x} \times \frac{80}{100}$ $\frac{80x}{80} = \frac{46,000}{80}$ $x = 575$ $575 \times 1.08 = 621$	<p style="text-align: center;"><u>discounted sofa</u></p> $460 \times 1.08 = 496.8$
---	---

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

- He saves

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.

$$\begin{array}{r} 460 \\ \times 0.08 \\ \hline 36.80 \end{array}$$
$$\begin{array}{r} 460 \\ \times 5 \\ \hline 2300 \\ \times 5 \\ \hline 11500 \\ \hline 23560 \end{array}$$
$$\begin{array}{r} 460 \\ + 36.8 \\ \hline 496.8 \end{array}$$
$$\begin{array}{r} 575 \\ + 46 \\ \hline 621 \end{array}$$
$$\begin{array}{r} 621 \\ - 496.8 \\ \hline 124.2 \end{array}$$

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.

$$\begin{aligned} 460 \div 0.8 &= 575 \quad 575 \times 1.08 = 621 \\ 460 \times 1.08 &= 496.8 \quad 621 - 496.8 = 124.2 \end{aligned}$$

Answer \$

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.

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

$$\frac{80x}{80} = \frac{46000}{80}$$

$$x = 600$$

$$\begin{array}{r} 5 \\ 648.0 \\ - 496.8 \\ \hline 151.2 \end{array}$$

$$\begin{array}{r} 600 \\ 80 \overline{)46000} \\ \underline{-4600} \\ 0 \end{array}$$

$$460 \times .08 = 36.8$$

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

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.

$460/x=80/100$	$575 + 46=621$
$80x/80x=46000/80x$	$x/460=8/100$
$x=575$	$100x/100x=3680/100x$
$x/575=8/100$	$460 + 36.8=533.6$
$100x/100x=4600/100x$	$621 - 533.6=$
$x=46$	

Answer \$

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 \$

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 \$

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.

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.

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

$$368 + 29.44 = 397.44 \quad 460 - 397.44 = 62.56$$

Answer \$

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.

$$\begin{array}{r} \text{Original} \\ 460. \quad 460 \quad 552 \\ \times 0.2 \quad + 92 \quad \times 0.08 \\ \hline 92 \quad 552 \quad 44.16 \\ 552 \\ + 44.16 \\ \hline 596.16 \end{array}$$
$$\begin{array}{r} \text{Discount} \\ 460 \quad 460 \\ \times 0.08 \quad + 36.8 \\ \hline 36.8 \quad 496.8 \end{array}$$
$$\begin{array}{r} 596.16 \\ - 496.8 \\ \hline 99.36 \end{array}$$

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.

$$\begin{aligned} & \text{original price:} \\ & \$460 \times .20 = 920 \\ & 920 - 460 = 460 \\ & 460 \div .08 = 36.8 \end{aligned}$$

Answer \$

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.

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.

$$\begin{array}{r}
 575 \\
 8\% \overline{) 4699} \\
 \underline{49} \\
 60 \\
 \underline{56} \\
 40 \\
 \underline{40} \\
 0
 \end{array}$$

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.



Grade 7
Mathematics

Scoring Leader Materials
2024 Training Set