New York State Testing Program

2022

Mathematics Test

Grade 7

Scoring Leader Materials

Training Set

Grade 7 Mathematics Reference Sheet

CONVERSIONS

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5,280 feet
1 mile = 1,760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds
1 ton = 2,000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
1 gallon = 3.785 liters
1 liter = 0.264 gallon
1 liter = 1,000 cubic centimeters

FORMULAS

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$

2-Point Holistic Rubric

2 Points	A 2-point response includes the correct solution to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task. This response • 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 Point	A 1-point response demonstrates only a partial understanding of the mathematical concepts and/or procedures in the task. This response • 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 Points*	A 0-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

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

3-Point Holistic Rubric

3 Points	A 3-point response includes the correct solution(s) to the question and demonstrates a thorough understanding of the mathematical concepts and/or procedures in the task. This response • 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 Points	A 2-point response demonstrates a partial understanding of the mathematical concepts and/or procedures in the task. This response • 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 Point	A 1-point response demonstrates only a limited understanding of the mathematical concepts and/or procedures in the task. This response • 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 Points*	A 0-point response is incorrect, irrelevant, incoherent, or contains a correct solution obtained using an obviously incorrect procedure. Although some elements may contain correct mathematical procedures, holistically they are not sufficient to demonstrate even a limited understanding of the mathematical concepts embodied in the task.

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

2022 2- and 3-Point Mathematics Scoring Policies

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

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

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.

Answer _____ students

EXEMPLARY RESPONSE

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.

x is the number of students out of 350 who are likely to prefer to do classwork online

$$\frac{17}{(17+8)} = \frac{x}{350}$$

$25x = 17\,(350)$

$x = 238$ students

or

$17 + 8 = 25$

$350 \div 25 = 14$

$14 \times 17 = 238$ students

or

x is the number of students out of 100 who are likely to prefer to do classwork online

$$\frac{17}{(17+8)} = \frac{x}{100}$$

$25x = 17(100)$

$x = 68$, which is 68%

$350 \times 0.68 = 238$ students *or*

$300 \times 0.68 = 204$ and $50 \times 0.68 = 34$, then $204 + 34 = 238$ students

or other valid process

Answer 238 students

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.

$17+8=25$

$\frac{25}{17} \times \frac{17}{25} = \frac{x}{350} \times \frac{25}{17}$

$5950 \times 1 = \frac{25x}{5950} \times 5950$

$\frac{5950}{25} = \frac{25x}{25}$

$238 = x$

$\frac{25}{17} \times \frac{17}{25} = \frac{x}{100} \times \frac{25}{17}$

$1700 \times 1 = \frac{25x}{1700} \times 1700$

$1700 = 25x$

$68 = x$

$350 \times 68\%$

$350 \times 0.68 = 238$

Answer 238 students

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of students out of 350 who will most likely have a preference to do their classwork online is correctly calculated using two distinct methods. This response is complete and correct.

GUIDE PAPER 2

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.

$\frac{online}{total}$ $\frac{17}{25} = \frac{x}{350}$

$25x = 5950$

$5950 \div 25 = 238$

$x = 238$

Answer 238 students

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of students out of 350 who will most likely have a preference to do their classwork online is correctly calculated using a proportion. This response is complete and correct.

GUIDE PAPER 3

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.

17+8=25
350/25=14
14 × 17= 238

Answer 238 students

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The number of students out of 350 who will most likely have a preference to do their classwork online is correctly calculated. This response is complete and correct.

GUIDE PAPER 4

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.

Online - 17
paper - 8

17+8= 25

25 ÷ 350 = 14

17 × 14 = 238

8 × 14 = 32 112

Answer 238 students

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The number of students out of 350 who will most likely have a preference to do their classwork online is correctly calculated; however, the division is written in an incorrect order. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

25 total

Based on the results, how many students out of 350 will most likely have a preference to do their classwork online?

Show your work.

$\frac{17}{25} \cdot 14 \quad \frac{238}{350}$

$\frac{8}{25} \cdot 14 \quad \frac{112}{350}$

Answer Online students

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The number of students out of 350 who will most likely have a preference to do their classwork online and on paper are calculated correctly. It is unclear which part of the circled answer is intended as the solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will most likely have a preference to do their classwork online?

Show your work.

$\frac{17}{25} = .68 = 68\%$

$\frac{X}{350} \quad \frac{68}{100}$

Answer 210 students

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The number of students out of 350 who will most likely have a preference to do their classwork online is correctly calculated as a percentage. It is unclear how the incorrect solution of the number of students is obtained. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

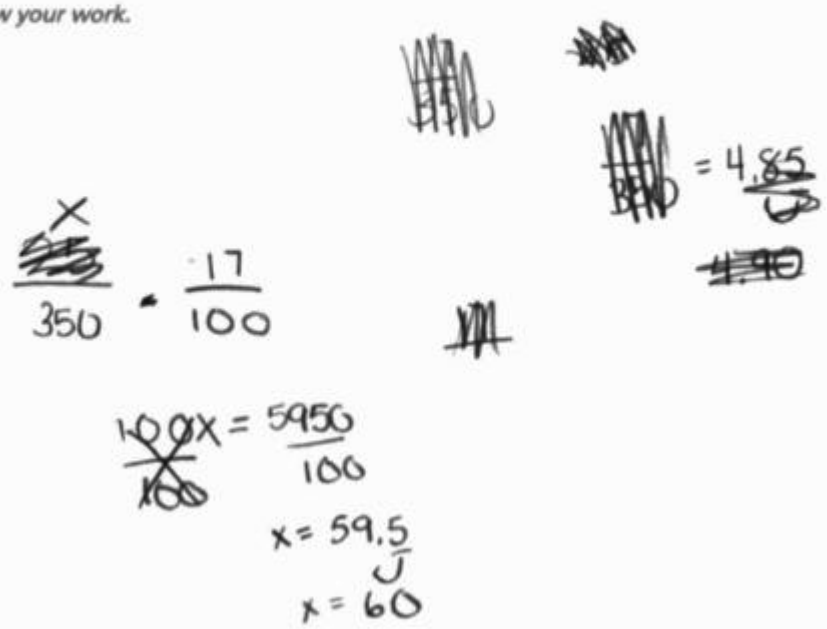
STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

>25

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.



Answer 60 students

Score Point 0 (out of 2 points)

Holistically, 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.

41

A teacher surveys a random group of students about their preference for doing classwork online or on paper. The results are shown in the table below.

STUDENT CLASSWORK PREFERENCE

Preference	Number of Students
Online	17
Paper	8

Based on the results, how many students out of 350 will **most likely** have a preference to do their classwork online?

Show your work.

8+17= 25
350 ÷ 25 = 14
14 for 17
7 for 8

Answer 350 students

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although a correct division determines the 14 partitions of 25 out of the original 350, it is used incorrectly in the work that follows, demonstrating no overall understanding of this process.

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

Answer _____ candy bars

EXEMPLARY RESPONSE

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

$13(9.50) + 3(25.00) = 123.50 + 75.00 = 198.50$

$250.00 - 198.50 = 51.50$

$51.50 \div 1.75 \approx 29.4285714$

29 candy bars

or

x is the greatest number of candy bars

$13(9.50) + 3(25.00) + 1.75x \leq 250.00$

$123.50 + 75.00 + 1.75x \leq 250.00$

$198.50 + 1.75x \leq 250.00$

$1.75x \leq 51.50$

29 candy bars

(Note: work with an equal sign in place of the less than or equal sign is acceptable)

or other valid process

Answer 29 candy bars

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

$13 \times 9.50 = 123.50$
$25 \times 3 = 75$
$123.50 + 75.00 = 198.50$
$250.00 - 198.50 = 51.50$
$51.50 \div 1.75 = 29.4285...$

Answer Marcy we be able to buy 29 candy bars. candy bars

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The greatest number of candy bars Marcy can buy is correctly calculated and truncated to the whole number using sound procedures. This response is complete and correct.

GUIDE PAPER 2

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

$9.50 \cdot 13 = 123.5$

$25 \cdot 3 = 75$

$123.5 + 75 = 198.5$

$250 - 198.5 = 51.5$

$\frac{51.5}{1.75} = 29$ candy bars

Answer 29 candy bars

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The greatest number of candy bars Marcy can buy is correctly calculated and truncated to the whole number using sound procedures. This response is complete and correct.

GUIDE PAPER 3

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

Total amount

$~~$250~~ ~~$126.5~~ $51.5

250.0
- 123.5
126.5

9.50(13) = $123.5

25(3) = 75

126.5
- 75.0
51.5

Now, Marcy has $51.5 left, ~~and she wants to~~ buy candy bars for her fundraiser.

She can buy 29 candy bars.

Answer 29 candy bars

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The greatest number of candy bars Marcy can buy is correctly calculated and truncated to the whole number using sound procedures. Although the final division to determine the solution is not shown and only explained, sufficient work is shown to demonstrate a complete understanding.

GUIDE PAPER 4

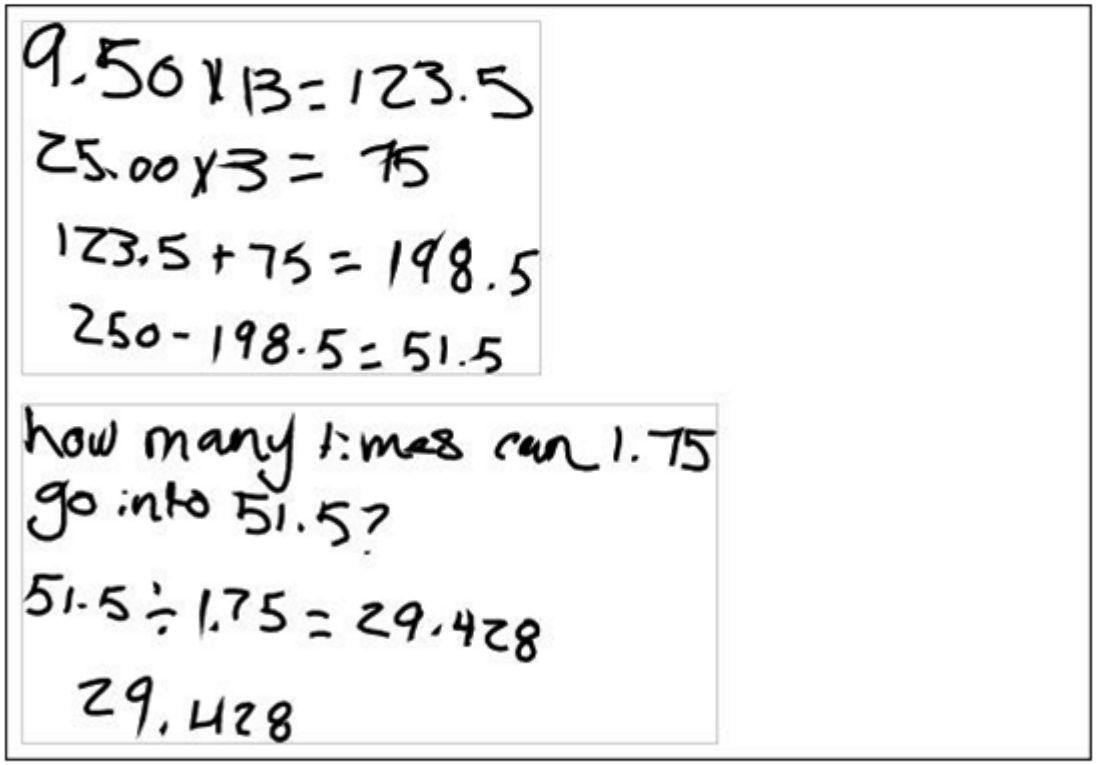
42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.



Answer 29.429 candy bars

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The greatest number of candy bars Marcy can buy is correctly calculated using sound procedures; however, the solution is not truncated to the correct whole number of candy bars. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

$13(9.5) + 3(25) + (1.75(x)) \leq 225$

$123.5 + 75 + 1.75(x) \leq 225$

$198.5 + 1.75(x) \leq 225.0$

$-198.5 \quad -198.5$

$\frac{1.75(x)}{1.75} \leq \frac{26.5}{1.75} \Rightarrow x = 15$

Answer 15 candy bars

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. An inequality is written to solve for the greatest number of candy bars Marcy can buy and the solution is truncated to the whole number; however, the total amount of money Marcy has to spend is incorrectly transcribed as 225, not 250. The rest of the work is correct. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 6

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

$250.00 - 123.50 - 75.00 = 51.50$
$9.50 \times 13 = 123.50$
$25.00 \times 3 = 75.00$
candy bars $= 1.75$
$51.50 \div$

Answer _____ candy bars

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The amount of money Marcy has left after buying the movie passes and gift cards is correctly calculated; however, the final step of determining the number of candy bars that can be purchased is not completed. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

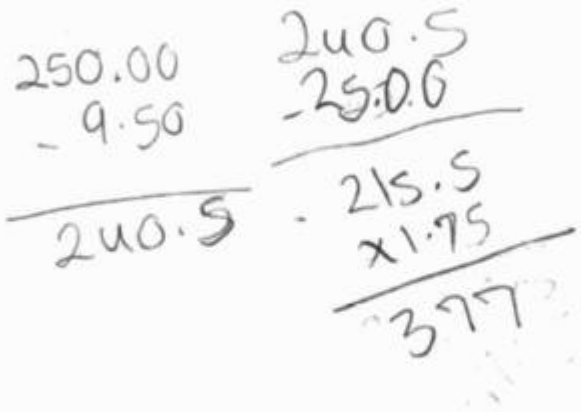
42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.



Answer 377 candy bars

Score Point 0 (out of 2 points)

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

42

Marcy is buying prizes to give away at a fundraiser, as described below.

- She has $250.00 to spend.
- She buys 13 movie passes for $9.50 each.
- She buys 3 gift cards valued at $25.00 each.
- She will use the rest of the money to buy candy bars that cost $1.75 each.

What is the greatest number of candy bars she can buy with the rest of the money?

Show your work.

$9.50 + 25.00 = 34.5 + 1.75

250 - 36 25

6.896

36.25

Answer 7 candy bars

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Numbers from the prompt are added, and then divided, without conveying any understanding of the task.

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

Answer _____ pages per minute

EXEMPLARY RESPONSE

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

$$\frac{175}{5} = \frac{35 \text{ pages}}{1 \text{ minute}}$$

or

175 : 5

simplifies to

35 : 1

So, 35 pages per minute

or other valid process

Answer 35 pages per minute

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

$$\frac{175 \text{ pages} \div 5 = 35}{5 \text{ min} \div 5 = 1}$$

Answer 35 pages per minute

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The unit rate is correctly calculated by dividing the number of pages by the number of minutes. This response is complete and correct.

GUIDE PAPER 2

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

$\frac{175}{5} = \frac{35}{1}$

Answer 35 pages per minute

Score Point 2 (out of 2 points)

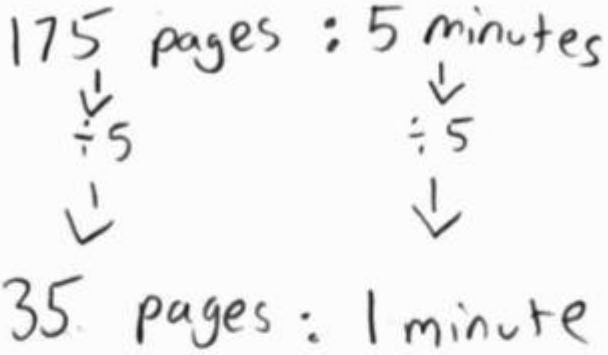
This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The unit rate is correctly calculated by dividing the number of pages by the number of minutes. This response is complete and correct.

GUIDE PAPER 3

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.



Answer 35 pages per minute

Score Point 2 (out of 2 points)

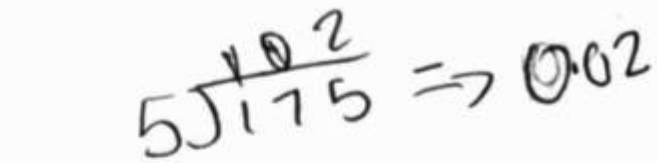
This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The unit rate is correctly calculated by simplifying the ratio of the number of pages to the number of minutes. This response is complete and correct.

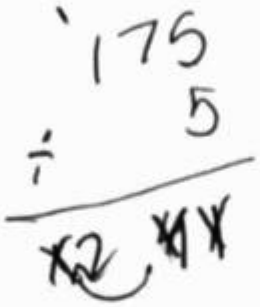
GUIDE PAPER 4

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.





Answer _____ pages per minute

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The correct process is used to calculate the unit rate by dividing the number of pages by the number of minutes; however, a calculation error results in an incorrect solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

$175 \div 5 = 35$

Answer $35 \times 60 = 2100$ pages per minute

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The unit rate is correctly calculated by dividing the number of pages by the number of minutes; however, further multiplication of the unit rate by 60 converts the unit rate from pages per minute into pages per hour. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

$\frac{5}{175} \quad \frac{1}{x}$

$175 \div 5$

Answer The unit rate of pages is $\frac{1}{35}$ pages per minute

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct ratio and division process are shown; however, the solution is incorrectly provided as a reciprocal of the unit rate. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

$175 \div 5 = 35 \div 5 = 7$

Answer 7 pages per minute

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the unit rate is correctly calculated by dividing the number of pages by the number of minutes, the correct solution is not identified. Holistically, further division of the unit rate by 5 demonstrates no overall understanding of the task.

43

At a company, a copy machine prints 175 pages in 5 minutes. If the number of pages printed is proportional to the time, in minutes, what is the unit rate?

Show your work.

$\frac{5}{175} = .028$

Answer .028 pages per minute

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The unit rate is calculated as the reciprocal rate and is inappropriately truncated.

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is -15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

Answer _____ $^{\circ}\text{F}$

EXEMPLARY RESPONSE

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is -15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

$|-15| + 35 = 50$

So, 50°F is the total change in temperature

or

$-15 + 50 = 35$

So, 50°F is the total change in temperature

or

$35 - (-15) = 50$

So, 50°F is the total change in temperature

or other valid process

Answer 50 °F

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is −15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

$|+15|=15$

$35°+15°=50°F$

Answer 50° °F

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The total change in temperature is correctly determined using an equation adding the absolute values of the initial and the final temperature. This response is complete and correct.

GUIDE PAPER 2

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is -15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

$-15 + x = 35$
$x = 50$

Answer 50 °F

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The total change in temperature is correctly determined using an equation. This response is complete and correct.

GUIDE PAPER 3

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is -15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

$-15 \quad -10 \quad -5 \quad 0 \quad 5 \quad 10 \quad 15 \quad 20 \quad 25 \quad 30 \quad 35$

$-15 + 50 = 35$

Answer 50 $^{\circ}\text{F}$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The total change in temperature is correctly determined using a number line and by solving an equation. This response is complete and correct.

GUIDE PAPER 4

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is $-15°F$.
- At noon, the temperature of the package of food has increased to $35°F$.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

30
+15
45°f

Answer 45 °F

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct process of adding the absolute values of the initial and final temperature is used to solve for the total change in temperature; however, the noon temperature of the food is incorrectly written as 30, not 35, resulting in an incorrect solution. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 5

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is −15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

− 15 − 35 = -50
The temperature changed by -50 degrees.

Answer -50 °F

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The total change in temperature is calculated to show how much the package has cooled instead of how much it has warmed; however, the work shows understanding of how to determine the change in temperatures. This response correctly addresses only some of the elements of the task.

GUIDE PAPER 6

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is -15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

$-15 + x = 35$
$35 - -15 = 45$
$x = 45$

Answer 45 °F

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct process is written to solve for the total change in temperature; however, a calculation error occurs ($35 - -15 \neq 45$), resulting in an incorrect solution. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 7

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is −15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

-15°F

35°F

35+(-15)=M

M = 20°F

Answer 20 °F

Score Point 0 (out of 2 points)

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

44

A cook removes a package of food from a freezer and begins to defrost the package.

- The initial temperature of the package of food is −15°F.
- At noon, the temperature of the package of food has increased to 35°F.

What is the total change in temperature, in degrees Fahrenheit, for the package of food?

Show your work.

the total change in the temperaturein degrees fahrenhit is 50

Answer 50 °F

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The correct solution is not supported with any work.

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

Answer $ _____

EXEMPLARY RESPONSE

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

$$50(0.90) + 50(1.06) + 50(0.86) =$$

$$45 + 53 + 43 = 141 \text{ dollars}$$

or

$$\frac{45}{50} = \frac{90}{100}$$

$$\frac{53}{50} = \frac{106}{100}$$

$$\frac{43}{50} = \frac{86}{100}$$

$$45 + 53 + 43 = 141 \text{ dollars}$$

or other valid process

Answer $ 141

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

Day 1
0.9 x 50 = 45

100
-14
86

Day 2
1.06 x 50 = 53

Day 3
0.86 x 50 = 43

45
53
+43
141

Answer $ 141

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The money earned from ticket sales on each of the three days is correctly calculated and totaled using sound procedures. This response is complete and correct.

GUIDE PAPER 2

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

50 = 100%
÷ 10 ÷ 10
5 = 10%
100% - 10% = 90%
50 - 5 = 45

5 = 10%
÷ 5 ÷ 5
1 = 2%
x3 x3
3 = 6%
100% + 6% = 106%
50 + 3 = 53

1 = 2%
x2 x2
2 = 4%
10% + 4% = 14%
5 + 2 = 7
50 - 7 = 43 or 14% less than goal.

$45 + $53 + $43 = $141

Answer $ 141

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The money earned from ticket sales on each of the three days is correctly calculated and totaled using sound procedures. This response is complete and correct.

GUIDE PAPER 3

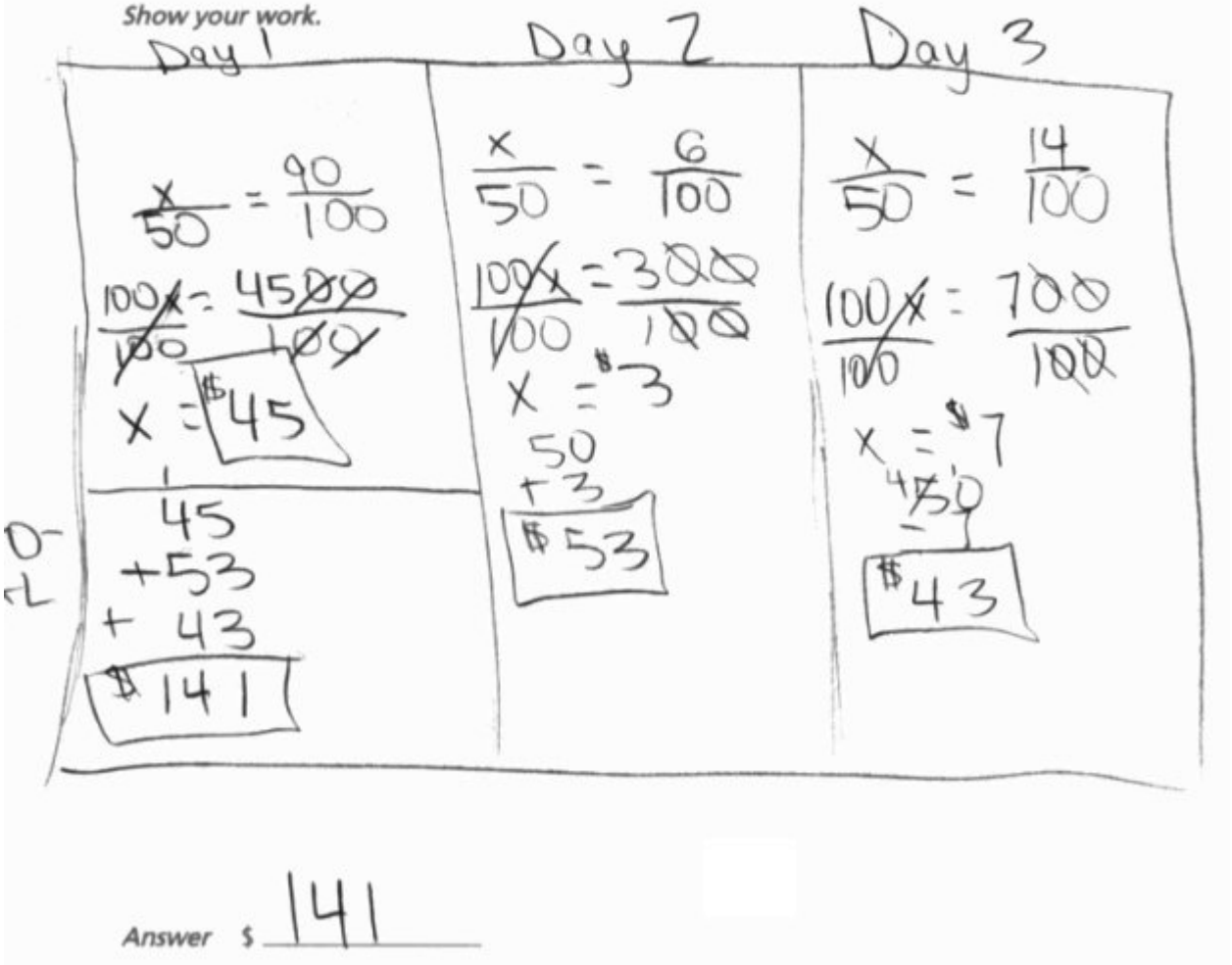
45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.



Answer $ 141

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The money earned from ticket sales on each of the three days is correctly calculated and totaled using sound procedures. This response is complete and correct.

GUIDE PAPER 4

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

$= \frac{x}{50} = \frac{90}{100}$

$x = 45$

$\frac{x}{50} = \frac{106}{100}$

$x = 53$

$\frac{x}{50} = \frac{14}{100}$

$x = 50$

$50 + 53 + 45 = 148$

Answer $ 148

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The money earned from ticket sales on the first and second days is correctly calculated. A correct process is written to determine the 14% of $50; however, an incorrect dollar amount is provided as the answer for the third day sales. The obtained answers are correctly totaled to determine the solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

$50.00 \times .90 = 45$	$50.00 + 45.00 = 95.00$
$50.00 \times .06 = 3$	$50.00 + 3.00 = 53.00$
$50.00 \times .14 = 7$	$50.00 - 7 = 43.00$

Answer $ 191.00

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The money earned from ticket sales on the second and third days is correctly calculated; however, $50 is inappropriately added to the first day sales when calculating the total amount earned for the three days. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

$\frac{x}{50.00} = \frac{90}{100} = \$45$

$\frac{x}{50.00} = \frac{6}{100} = \$3$

$\frac{x}{5000} = \frac{14}{100} = \$7 = \$5$ 5

Answer $ 55

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The money earned from ticket sales on the first day is correctly calculated. The 6% and 14% of $50 are correctly calculated; however, the percent increase and decrease is not applied to the daily goal when computing sales on the second and third days. The obtained answers are correctly totaled to determine the solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

Day ① (50)(.9) = 45

50+45=95

Day ② (95)(.9) = 85.50+95=180.50

Day ② 180.50 (14)

Answer $ 119.7

Score Point 0 (out of 2 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The money earned from ticket sales on the first day is calculated by adding 90% of the daily goal to the daily goal, resulting in an incorrect total for this day. The second day total earnings are incorrectly calculated, and the work for the third day earnings is missing. It is unclear how the total earnings for all three days is determined.

45

The members of a school club are selling tickets for a fundraiser. The goal for the fundraiser is to earn $50.00 each day from ticket sales. The list below shows the percent of the goal reached each day.

- On the first day, the members earned 90% of their daily goal.
- On the second day, the members earned 6% more than their daily goal.
- On the third day, the members earned 14% less than their daily goal.

How much money, in dollars, did the members earn from ticket sales on all three days?

Show your work.

$50.00 − 0.90 = $49.01

$50.00 + 0.6 = $50.06

$50.00 − 0.14 = $49.86

49.01 + 49.86 + 50.06 = $148.93

Answer $ 148.93

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Percentages are incorrectly treated as decimal equivalents that are simply added to or subtracted from the daily goals. Also, there are calculation errors ($50.00 – 0.90 ≠ $49.01 and $50.00 + 0.6 ≠ $50.06).

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

EXEMPLARY RESPONSE

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

The student first made an error in Step A. The student should not have distributed the negative sign to the numerator and denominator. The value of the expression in simplest form is −3.

Step A: $5 - \left(\frac{40}{5}\right)$

Step B: $5 - 8$

Step C: -3

or other valid explanation

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

The student first made an error in Step A. Instead of simplifying the fraction in the parenthesees, he\she made the fraction positive and added 5 to it. The student should have simplified $\frac{40}{5}$ to 8, and then subracted 8 from five which would equal to -3.

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The error is correctly identified and explained, and the correct value of the expression in the simplest form is included. This response is complete and correct.

GUIDE PAPER 2

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

The student made an error in Step A. The correct value is -3

Step A: $5 - (\frac{40}{5})$

Step B: $5 - 8$

Step C: -3

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The error is correctly identified and explained, and the correct value of the expression in the simplest form is included. This response is complete and correct.

GUIDE PAPER 3

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

$5-(\frac{40}{5})$

5- 8

-3

the student distributed the negative sign to both the numerator and the denomanator when they should of only done one, giving the 5 + 40/5 instead of 5 - 40/5

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The step in which the student first made an error is not identified as Step A, but this is not needed as the error is clearly explained. The correct value of the expression in the simplest form is included. This response is complete and correct.

GUIDE PAPER 4

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

He first made an error in step A. He was supposed to what was in the parenthesis first and then do the rest.
He should have gotten -3.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The step in which the student first made an error and the correct value of the expression in simplest form are correctly identified, but the explanation does not sufficiently explain the error. This response correctly addresses only some elements of the task.

GUIDE PAPER 5

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

Step A because the student made the denominator negative when it should've been just the numerator

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The step in which the student first made an error is correctly identified and explained; however, the correct value of the expression in simplest form is not calculated. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

The student made an error in step A. They were supposed to divide 40 and 5 first. The correct answer is −3

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The step in which the student first made an error and the correct value of the expression in simplest form are correctly identified; however, the explanation insufficiently describes the error of using an incorrect sign. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

The boy made his first error in step A the correct answer is 3.

Score Point 0 (out of 2 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The step in which the student first made an error is correctly identified, but the error is not explained. An incorrect value of the expression in simplest form is provided without an explanation to support this answer.

46

A student incorrectly simplifies an expression. The expression and the student's work are shown below.

$5 - \left(\frac{40}{5}\right)$

Step A: $5 + \left(\frac{-40}{-5}\right)$

Step B: $5 + 8$

Step C: 13

In which step did the student first make an error? Be sure to include the correct value of the expression in simplest form in your answer.

Explain your answer.

They messed up on step B, when they simplified the should have made it negative

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The step in which the student first made an error is incorrectly identified. The value of the expression in simplest form is not provided.

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine t, the cost, in dollars, of each admission ticket, including tax.

Equation _____

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

Answer $ _____

EXEMPLARY RESPONSE

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine t, the cost, in dollars, of each admission ticket, including tax.

Equation $4t = 175 - 25$

or other equivalent equation

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

$4t = 175 - 25$

$4t = 150$

$t = 150/4$

$t = \$37.50$

or other valid work

Answer $ 37.50

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine *t*, the cost, in dollars, of each admission ticket, including tax.

Equation $t = (175 - 25) \div 4$

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

$t = (\$175 - 25) \div 4$

$t = \$150 \div 4$

$t = \$37.50$

Answer $ 37.50

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct equation is written, and it is correctly solved to determine the cost, in dollars, of each admission ticket. This response is complete and correct.

GUIDE PAPER 2

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine t, the cost, in dollars, of each admission ticket, including tax.

Equation $4x + 25 = 175$

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

$4x + 25 = 175$

$-25 \quad -25$

$\frac{4x}{4} = \frac{150}{4}$

$x = \$37.50$

Answer $ 37.50

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct equation is written, and it is correctly solved to determine the cost, in dollars, of each admission ticket. It is acceptable to use a variable other than the suggested variable t. This response is complete and correct.

GUIDE PAPER 3

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine *t*, the cost, in dollars, of each admission ticket, including tax.

Equation $t = (175 - 25) \div 4$

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

$(175 - 25) \div 4 = 37.5$

Answer $ 37.50

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. A correct equation is written, and it is correctly solved to determine the cost, in dollars, of each admission ticket. This response is complete and correct.

GUIDE PAPER 4

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine *t*, the cost, in dollars, of each admission ticket, including tax.

Equation $4x + 25 = 175$

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

$175 - 25$

$\frac{150}{4}$

Answer $ 37.5

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. A correct equation is written, and it is correctly solved to determine the cost, in dollars, of each admission ticket; however, the solution is provided in an incorrect format for money. This response contains an incorrect solution but applies a mathematically appropriate process.

GUIDE PAPER 5

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine *t*, the cost, in dollars, of each admission ticket, including tax.

Equation $175 - 25 \div 4 = t$

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

$175 - 25 = 150 \div 4 =$

Answer $ 37.50

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The cost of each admission ticket is correctly calculated. The equation is lacking the necessary parentheses, which change the order of operations, and as written would result in an incorrect solution. This response correctly addresses only some elements of the task.

GUIDE PAPER 6

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine *t*, the cost, in dollars, of each admission ticket, including tax.

Equation $175 \times 4 - 25$

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

$175 - 25 = 150$
$150 \div 4 = 37.50$ dollars per ticket.

Answer $ 37.50

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the mathematical concepts and procedures in the task. The cost, in dollars, of each admission ticket is correctly calculated. An incorrect expression is provided in place of a required equation and it does not have a variable. This response correctly addresses only some elements of the task.

GUIDE PAPER 7

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine *t*, the cost, in dollars, of each admission ticket, including tax.

Equation [(175-25) ÷ 4] × t

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

175-25=150 ÷ 4=37.50

Answer $ 37.50t

Score Point 0 (out of 2 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. The response exhibits two distinct conceptual errors. An incorrect expression is provided in place of an equation. The multiplication symbol in the expression should be an equal sign. The second error is that although the cost of each admission ticket is correctly calculated in the work, holistically, multiplying the obtained answer by *t* shows no overall understanding of the task.

47

Ms. Boi spent a total of $175.00 for 4 admission tickets and for parking at a baseball game. The cost of each admission ticket was the same amount, including tax. The cost of parking was $25.00. Write an equation that can be used to determine t, the cost, in dollars, of each admission ticket, including tax.

Equation 25.00 4t = 1

What was the cost, in dollars, of each admission ticket, including tax?

Show your work.

25.00
X 4
100,00
+ 75.00
175.00

Answer $ 128.00

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. An incorrect equation is provided. An incorrect solution is obtained using an obviously incorrect procedure.

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

Answer _____ %

EXEMPLARY RESPONSE

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

$4{,}100 + 4{,}100\ (0.07) = 4{,}100 + 287 = 4{,}387$ bottles

$4{,}387 + 500 = 4{,}887$ bottles

$(4{,}887 - 4{,}100)/4{,}100 = 787/4{,}100 \approx 0.191951219 \approx 19\%$

or

$4{,}100 + 4{,}100\ (0.07) = 4{,}100 + 287 = 4{,}387$ bottles

$4{,}387 + 500 = 4{,}887$ bottles

$4{,}887/4{,}100 \approx 1.191951219$, which is a 19% increase

or

$4{,}100\ (\ 0.07) = 287$ bottles

$287 + 500 = 787$ bottles

$787\ /\ 4{,}100 \approx 0.191951219 \approx 19\%$

or

$500/\ 4{,}100 \approx 0.121951219 \approx 12\%$

$12\% + 7\% \approx 19\%$

or other valid process

Answer 19 %

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

$4100 \times 1.07 = 4387$
$4387 + 500 = 4887$
$(4887 - 4100) \div 4100 = 19\%$

Answer 19 %

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The percent increase, to the nearest percent, in the number of water bottles manufactured from February to April is correctly calculated using sound procedures. This response is complete and correct.

GUIDE PAPER 2

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

F: 4,100

M: 7% of 4,100 = 287

4,100 + 287 = 4387

A: 4387 + 500 = 4887

4887 - 4100 = 787

$\frac{787}{4,100} = \frac{x}{100}$

$4100x = 78700$

$\frac{4100}{4100}$

$x = 19$

Answer 19 %

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The percent increase, to the nearest percent, in the number of water bottles manufactured from February to April is correctly calculated using sound procedures. This response is complete and correct.

GUIDE PAPER 3

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

$4100 \times 7\% = 287$
$4100 + 287 = 4387$
$4387 + 500 = 4887$
(I guessed until i got the answer)
$19\% \times 4100 = 779$
$4100 + 779 = 4879$

Answer 19% %

Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the mathematical concepts and procedures in the task. The percent increase, to the nearest percent, in the number of water bottles manufactured from February to April is correctly calculated using sound procedures. A valid trial and error process is used to determine the percent increase. This response is complete and correct.

GUIDE PAPER 4

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

FEBRUARY

4100 bottle

$x = 19.2$

percent increase

$\frac{787}{4100} = \frac{x}{100}$

MARCH

$\frac{x}{4100} = \frac{107}{100}$ (cross multiply)

$\frac{100x}{100} = \frac{438700}{100}$

$x = 4387$

APRIL

$4387 + 500 = 4887$

Answer 19.2 %

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. The percent increase in the number of water bottles manufactured from February to April is correctly calculated using sound procedures; however, the solution is not rounded to the nearest whole percent. This response addresses most but not all aspects of the task using mathematically sound procedures.

GUIDE PAPER 5

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

$4100 \times .07=287$
$287+500=787$
$4100 \div 787=0.191=.19=19\%$

Answer 19% %

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. The percent increase, to the nearest percent, in the number of water bottles manufactured from February to April is correctly calculated using sound procedures; however, the division is written in an incorrect order. This response reflects a minor misunderstanding of the underlying mathematical procedures.

GUIDE PAPER 6

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

4100 · 7% = 287
4100 + 287 = 4387
4387 + 500 = 4887

$\frac{4887 - 4100}{4100}$ $\frac{787}{4100}$

0.19

Answer 0.19 %

Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the mathematical concepts and procedures in the task. The percent increase in the number of water bottles manufactured from February to April is correctly calculated using sound procedures; however, the solution is not rounded to the nearest whole percent. This response addresses most, but not all, aspects of the task using mathematically sound procedures.

GUIDE PAPER 7

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

F:4,100
M: $4100 \times 0.7 + 4{,}100$
M:6970
A:$6970 + 500$
A:7470
Regular percent decrease to find out the answer: $\# \times$ percent $- \#$
This problem: $7470 - 4100 = 3370 \div 4100 = 0.82 = 82\%$

Answer 82 %

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. A correct process is used to calculate the percent increase, to the nearest percent, in the number of water bottles manufactured from February to April; however, 0.7 is incorrectly used in place of 0.07 to determine the 7% more water bottles in March, which is a conceptual error. Per Scoring Policy #8, if the student makes a conceptual error, the student shall not receive more than 50% credit. This response reflects a lack of essential understanding of the underlying concepts.

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

4100 x 7% = 287

4100 + 287 = 4387

4387 + 500 = 4887

4100 ÷ 4887

Answer 16 %

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. A correct process is used to calculate the total number of bottles in March and April; however, the percent increase is incorrectly determined when dividing the monthly amounts. This response reflects a lack of essential understanding of the underlying concepts.

GUIDE PAPER 9

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

$4100 \times .07=287+500=787$

Answer 787 %

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the mathematical concepts and procedures in the task. A correct process is used to calculate the increase in the number of bottles from February to April, which is incorrectly provided as the percent increase. This response addresses some elements of the task correctly but reaches an inadequate solution.

GUIDE PAPER 10

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

4,100 + 7% = 41,00.07
+500
4600.07

4600.07

Answer 46 %

Score Point 0 (out of 3 points)

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

48

A company manufactures water bottles. The list below describes the number of water bottles manufactured in three months.

- February: 4,100 water bottles
- March: 7% more water bottles than in February
- April: 500 more water bottles than in March

What is the percent increase, to the nearest percent, in the number of water bottles the company manufactured from February to April?

Show your work.

$4{,}100 \div 100 = 41$ $\quad \times \begin{array}{r} 41 \\ 7 \\ \hline 287 \end{array}$ $\quad + \begin{array}{r} 4{,}100 \\ 287 \\ \hline 4{,}387 \end{array}$ $\quad 4{,}387 \div 500 = 8.774$

Answer 8.774 %

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the mathematical concepts in the task. Although the total number of bottles for March is correctly calculated, the April amount is not addressed, and dividing the March amount by 500 to determine the total percent increase demonstrates that, holistically, there is no understanding.