New York State Testing Program

2018

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

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

3-Point Holistic Rubric

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

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

2018 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, a correct answer with **no** work shown receives **no** credit.
4. If students are **not** directed to show work, any work shown will **not** be scored. This applies to items that do **not** ask for any work and items that ask for work for one part and do **not** ask for work in another part.
5. If the student provides one legible response (and one response only), the rater should score the response, even if it has been crossed out.
6. If the student has written more than one response but has crossed some out, the rater should score only the response that has **not** been crossed out.
7. If the student provides more than one response, but does not indicate which response is to be considered the correct response and none has been crossed out, the student shall not receive full credit.
8. If the student makes a conceptual error (that is an error in understanding rather than an arithmetic or computational error), that student shall not receive more than 50% credit.
9. Trial-and-error responses are **not** subject to Scoring Policy #6 above, since crossing out is part of the trial-and-error process.
10. If a response shows repeated occurrences of the same conceptual error within a question, the conceptual error should **not** be considered more than once in gauging the demonstrated level of understanding.
11. In questions requiring number sentences, the number sentences must be written horizontally.
12. When measuring angles with a protractor, there is a +/- 5 degrees deviation allowed of the true measure.
13. Condition Code A is applied whenever a student who is present for a test session leaves an entire constructed-response question in that session completely blank (no response attempted). This is not to be confused with a score of zero wherein the student does respond to part or all of the question but that work results in a score of zero.

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

Answer _____ square inches

EXEMPLARY RESPONSE

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

$$\frac{36}{9} = \frac{4 \text{ ft}}{\text{scale in.}} = \frac{48 \text{ in.}}{\text{scale in.}} \qquad \frac{9}{36} = \frac{x}{32}$$

OR

$$\frac{32}{4} = \frac{32 \times 12}{48} = 8 \qquad 36x = 288$$
$$x = 8$$

$$9 \times 8 = 72$$

or other valid process

Answer 72 square inches

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

09
4|36
-36
0

08
4|32
-32
0

136 → actual area of the classroom
x 32
272
+1080
1,152

- The floor in the scale drawing is 4x smaller than the actual length & width of the rectangular floor.

72 inches

36 ft

32 ft

÷ 4

9

8

Answer 72 square inches

GO ON

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The area of the scale drawing is calculated correctly using sound procedures.

GUIDE PAPER 2

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

Actual:
A = l × w
A = 36 × 32
A = 1,152 feet

36 ÷ 4 = 9
32 ÷ 4 = 8

Scale:
A = l × w
A = 9 × 8
A = 72

Answer 72 square inches

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The area of the scale drawing is calculated correctly using sound procedures.

GUIDE PAPER 3

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

36 x 12 = 432

32 x 12 = 384

$\frac{384}{48} = 8$ $\frac{432}{9} = 48$

A = bh

9 x 8 = 72

Answer 72 square inches

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The area of the scale drawing is calculated correctly using sound procedures.

GUIDE PAPER 4

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

$36 \div 9 = 4$ $32 \div 4 = 8$ $9 + 8 = 17$

Answer 17 square inches

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The correct scale factor is determined; however, the scale area is calculated using addition rather than multiplication. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

$\frac{36}{9} = 4$ 4:1

$36 \times 32 = 1152$

$\frac{1152}{4} = 288$ sq. in.

Answer 288 square inches

Score Point 1 (out of 2 points)

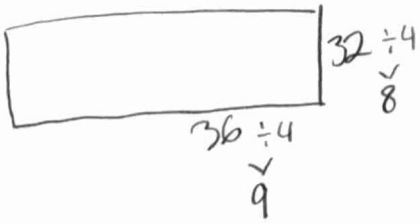
This response demonstrates only a partial understanding of the concepts in the task. The correct scale factor and true area are determined; however, the scale area is calculated incorrectly. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.



Answer 8 square inches

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The correct scale width is determined; however, it is not used to calculate the scale area. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

Show your work.

$36 \times 32 = 1,152\text{in}$

Answer 1,152 square inches

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. Although the true area is calculated, there is no evidence of an understanding of scale.

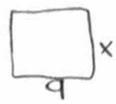
GUIDE PAPER 8

41

The rectangular floor of a classroom is 36 feet in length and 32 feet in width. A scale drawing of the floor has a length of 9 inches. What is the area, in square inches, of the floor in the scale drawing?

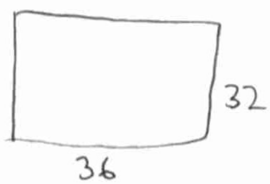
Show your work.

36 × 12 = 432 · .2 = 864 = 9



x = 8

32 × 12 = 384 · .21 = 7.68 = 8



DO NOT WRITE BEYOND THIS AREA

Answer 8 square inches

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. Although the work contains correct values for the scale length and width, they are obtained through incorrect procedures and no attempt is made to calculate the area.

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

Answer _____ cycling outfits

EXEMPLARY RESPONSE

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

$$3 \times 7.23 = 21.69$$
$$500 - (273.98 + 21.69 + 42.36)$$
$$500 - 338.03 = 161.97$$

$$\frac{161.97}{78.12} = 2.07\ldots \quad OR \quad 161.97 - 78.12 = 83.85$$
$$83.85 - 78.12 = 5.73$$

or other valid process

Answer 2 cycling outfits

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

273.98+ 7.23 3+42.36
338.03

500-338.03=161.97

$161.97 \geq 78.12x$
$2.073 \geq x$
$2 \geq x$

Answer 2 cycling outfits

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The greatest number of outfits is calculated correctly using an appropriate inequality.

GUIDE PAPER 2

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

500.00 to spend bicycle cost
500.00 − 273.98
Now he has 226.02
3 bicycle reflectors for $7.23
Buys 3 bicycle reflectors 21.69 +
Cost 7.23 and helment cost 42.36
Now he has 161.97

226.02
− 64.05
161.97

Cost for cycling outfits
161.97 − 78.12 = 83.85
83.85 − 78.12 = 5.73

He can only buy 2 Cycling outfits

Answer 2 cycling outfits

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The greatest number of outfits is calculated correctly by repeatedly subtracting the cost of each outfit until there will not be enough money left.

GUIDE PAPER 3

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

$273.98 + 7.23(3) + 42.36$
$273.98 + 21.69 + 42.36$
338.03

$500\text{-}338.03$
161.97
$78.12 \times 2 = 156.24$

Answer 2 cycling outfits

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The greatest number of outfits is appropriately determined by comparing the cost of two outfits to the remaining money.

GUIDE PAPER 4

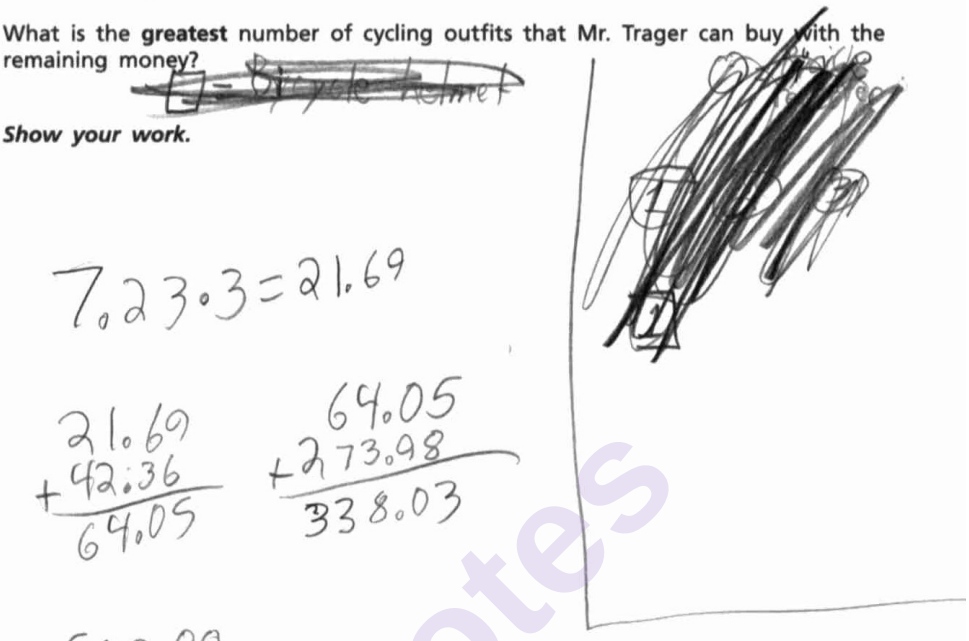
42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.



Answer 2 cycling outfits

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The amount of remaining money is correctly calculated; however, it is not clear how the correct solution was obtained from this result. The required work is incomplete.

GUIDE PAPER 5

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

$273.98 + 42.36 = 316.34$
$7.23 \times 3 = 21.69$
$500-(21.69+316.34)=338.03$
$338.03 \div 78.12 = 4$

Answer 4 cycling outfits

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The amount of remaining money is miscalculated (in the third line of the work, only the addition was performed, not the subtraction); however, the incorrect amount is correctly divided by the cost per outfit and the result is truncated to a whole number. The response contains an incorrect solution but applies an appropriate process.

GUIDE PAPER 6

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

$500.000
new bike = $273.98
3 bike reflectors = $7.23 each
1 bike helmet= $42.36
new cycling outfit= $78.12 each
Only 2 oufits

bike reflectors 7.23 × 3 = $21.69 + 273.98 = 295.67
Total remaing $204.33
295.67 − 500.00 = $204.33
New Cycing outfit $204.33 − $78.12 = 126.21
One outfit $126.33
Secand outfit $48.09

Answer 2 cycling outfits

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The greatest number of outfits is appropriately calculated by repeatedly subtracting the cost of each outfit from the remaining money; however, the cost of the helmet is not included in the money already spent. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

Total
500

7.23^3

$$\begin{array}{r} {\scriptstyle 1\ 1\ 2\ 1} \\ 273.98 \\ 377.93 \\ +\ \ 42.36 \\ \hline 694.27 \end{array}$$

He can't buy anything else

Answer 0 cycling outfits

Score Point 0 (out of 2 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the task. The cost per reflector is cubed rather than multiplied by three; the resulting total for the money already spent exceeds the $500 budget, contradicting the prompt.

42

Mr. Trager has $500.00 to spend at a bicycle store. All prices listed below include tax.

- He buys a new bicycle for $273.98.
- He buys 3 bicycle reflectors for $7.23 each and 1 bicycle helmet for $42.36.
- He plans to use the remaining money to buy new cycling outfits for $78.12 each.

What is the **greatest** number of cycling outfits that Mr. Trager can buy with the remaining money?

Show your work.

$273.98 + 7.23(\times\ 3) + 42.36 = 78.12$

Answer 146.27 cycling outfits

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. The work and solution are incorrect.

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine d, the maximum number of days that Jim can rent a car.

Inequality _____

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

_____

_____

_____

EXEMPLARY RESPONSE

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine d, the maximum number of days that Jim can rent a car.

Inequality $(250 \times 0.10) + 21d \leq 115$ *or equivalent*

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

Jim is wrong because the solution to the inequality is $d \leq 4.29$, and 5 is not less than 4.29.

OR

5 days would cost Jim $130, which is $15 over budget.
He can only afford the car for 4 days.

or other valid explanation

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Inequality $115 \geq (21d + (250 \times .1)$

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

He is incorrect as the equation bblows shows that he only has enough for 4.2 days, or 4 days.

$115 \geq 21d + (250 \times .1)$

$115 \geq 21d + 25$

$-25 \quad -25$

$\frac{90}{21} \geq \frac{21d}{21}$

$4.2 \geq d$

$4 = d$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The inequality and explanation are correct.

GUIDE PAPER 2

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Inequality $21x + 0.10(250) \leq 115.00$

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

$21(5) + .10(250) \leq 115.00$
$250 \times .10 = 25$
$21 \times 5 = 105$
$105+25=130$
He doesnt have enough money to travel 250 miles in 5 days

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The inequality and explanation are correct. Using *x* as a variable instead of *d* is inconsequential and does not detract from the response.

GUIDE PAPER 3

43

multiplier
unit rate

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven. +

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Inequality $21.00d + 0.10 \cdot 250 \leq 115.00$

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

$21d + 25 \leq 115$

Explain your answer.

Jim is not correct because I replaced d with 5. then I multiplyed 21 and 5 to get 105. Next I added 105 and 25 to get 130. Lastly I found out that 130 is bigger then 115 so he is wrong.

$$\begin{array}{r} 21 \\ \times\ 5 \\ \hline 105 \end{array} \qquad \begin{array}{r} {}^{1}105 \\ +\ 25 \\ \hline 130 \end{array}$$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The inequality and explanation are correct.

GUIDE PAPER 4

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Inequality D • P + M = T

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

21 • 5 = 105 0.10 • 250 = 25 $105 + $25 $130

Explain your answer.

Jim is not correct because, when you multiply 21 • 5 = 105 and then, 0.10 • 250 it equals 25 and 105 + 25 = $130. So, if he rents the car for 5 days it would be a total of $130 and not $115.00.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The explanation is correct; however, the response does not include a correct inequality. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Inequality

$21d + 25 = 115$
$21(4) + 25 = 109$

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

Jim is wrong because if he rents the car for 5 days it will be more then 115.But if he only goes for 4 days he will only spend 109$ instead of 115.That is why Jim is wrong.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The explanation is correct; however, an equation is written rather than an inequality. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Inequality 115-(250x.10) > dx21.00

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

The maximum whole number of days he can rent the car is 4. I say 4 because If you multiply 250 x 10 you get 25. Then you subtract 25 from 115.00 and you get 90. When you divide 90 by 21 you get 4.2857142 86. The maximun whole number is 4.

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The explanation is correct; however, although the inequality is otherwise correct, it uses a greater than symbol instead of a greater than or equal to symbol. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine d, the maximum number of days that Jim can rent a car.

Inequality $250 + 115.00$

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

Jim is correct because if he rents the car for 5 days, the cost would be $105 where as if if he rented the car for 6 days, he would go over his budget and spend $126

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. An incorrect expression is provided rather than an inequality, and the explanation is incorrect.

43

Jim needs to rent a car. A rental company charges $21.00 per day to rent a car and $0.10 for every mile driven.

- He will travel 250 miles.
- He has $115.00 to spend.

Write an inequality that can be used to determine *d*, the maximum number of days that Jim can rent a car.

Inequality 21.00 ÷ d + 21.00 x 250

Jim believes the maximum whole number of days he can rent the car is 5. Is he correct? Why or why not?

Explain your answer.

Jim is correct because 21 x 5 = $105.00, meaning 5 days is his limit because he couldn't be able to pay one extra day

21 x 5 = 105

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. An incorrect expression is provided rather than an inequality, and the explanation is incorrect.

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

Answer _____ yards of fabric per curtain

EXEMPLARY RESPONSE

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

$$84.5 - 19.7 = 64.8$$

$$\frac{64.8}{6} = 10.8$$

or other valid process

Answer 10.8 yards of fabric per curtain

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

$6x + 19.7 = 84.5$ yards

$-19.7 \quad -19.7$

$\frac{6x}{6} = \frac{64.8}{6}$

$x = 10.8$

Answer 10.8 yards of fabric per curtain

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The yards of fabric used per curtain is correctly determined using sound procedures.

GUIDE PAPER 2

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

84.5-19.7=64.8
She used 64.8 yards of fabric. (in total)

64.8÷6=10.8
She used 10.8 yards of fabric for each.

Answer 10.8 yards of fabric per curtain

Score Point 2 (out of 2 points)

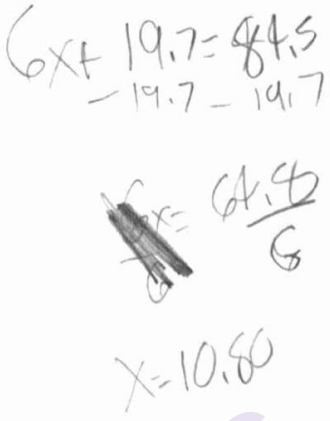
This response demonstrates a thorough understanding of the concepts in the task. The yards of fabric used per curtain is correctly determined using sound procedures.

GUIDE PAPER 3

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.



Answer $10.80 yards of fabric per curtain

Score Point 2 (out of 2 points)

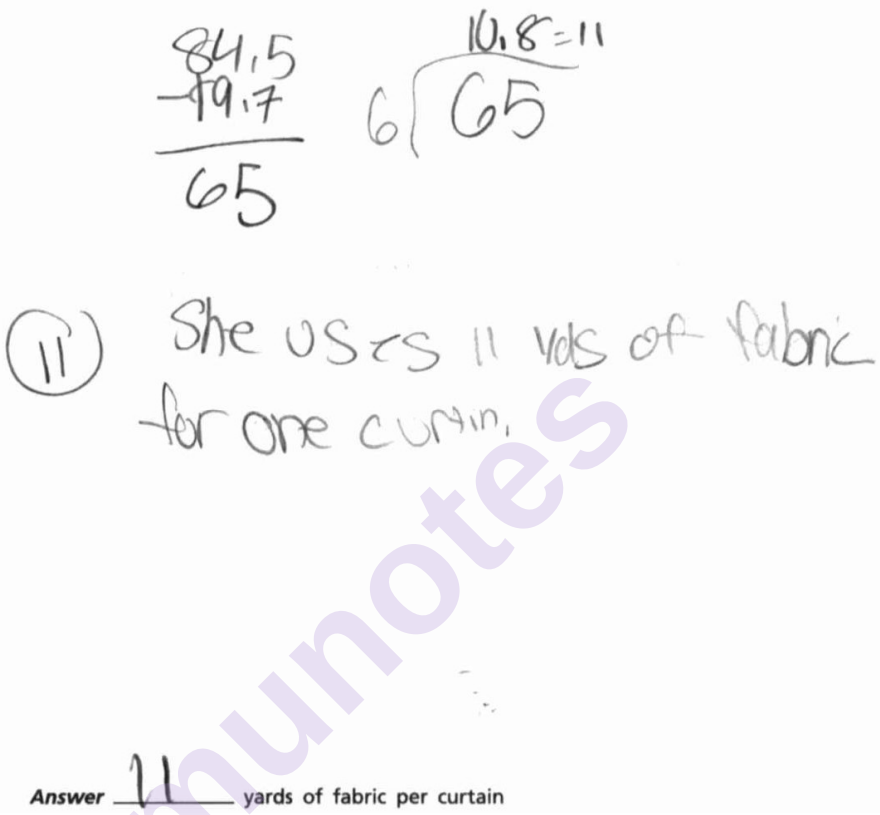
This response demonstrates a thorough understanding of the concepts in the task. The yards of fabric used per curtain is correctly determined using sound procedures. The dollar sign included in the answer is considered an inconsequential error that does not detract from the response.

GUIDE PAPER 4

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.



Answer 11 yards of fabric per curtain

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The yards of fabric used per curtain is correctly determined; however, the answer is rounded. The response contains an incorrect solution but applies an appropriate process.

GUIDE PAPER 5

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

$\frac{19.7}{6} = 3.28\overline{33}$

$\frac{84.5}{6} = 14.08\overline{33}$

$14 - 3 = 11$

Answer 11 yards of fabric per curtain

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The yards of fabric per curtain, both total and unused, are correctly determined; however, they are inappropriately rounded before taking their difference to determine the solution. The response contains an incorrect solution but applies an appropriate process.

GUIDE PAPER 6

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

$84.5 - 19.7 \div 6 = 81.22$

Answer 81.22 yards of fabric per curtain

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The equation written shows some understanding of the correct process; however, it is missing parentheses around the subtraction and the student followed through on this error by following the order of operations. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

14.08
6 | 84.5

5.61

19.70
-14.08
5.61

Answer 5.61 yards of fabric per curtain

Score Point 0 (out of 2 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the task. Although the total amount of fabric is divided by the number of curtains, the result is incorrectly subtracted from the total fabric remaining, showing confusion between totals and quantities per curtain.

44

Jennifer has 84.5 yards of fabric to make curtains. She makes 6 identical curtains and has 19.7 yards of fabric remaining. How many yards of fabric does Jennifer use per curtain?

Show your work or explain your answer.

3.283333333
6|19.7

Answer 3.3 yards of fabric per curtain

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. The work and solution are incorrect.

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

Answer _____ miles

EXEMPLARY RESPONSE

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

$$22 - \left(4\tfrac{3}{4} + 5\tfrac{1}{8} + 0 + 6\tfrac{1}{4}\right)$$
$$= 22 - \left(11 + 5\tfrac{1}{8}\right)$$
$$= 22 - 16\tfrac{1}{8}$$
$$= 5\tfrac{7}{8}$$

OR

$$22 - \left(4\tfrac{3}{4} + 5\tfrac{1}{8} + 0 + 6\tfrac{1}{4}\right)$$
$$= 22 - \left(\tfrac{19}{4} + \tfrac{41}{8} + \tfrac{25}{4}\right)$$
$$= 22 - \left(\tfrac{38}{8} + \tfrac{41}{8} + \tfrac{50}{8}\right)$$
$$= 22 - \tfrac{129}{8}$$
$$= \tfrac{176}{8} - \tfrac{129}{8} = \tfrac{47}{8}$$
$$= 5\tfrac{7}{8}$$

or other valid process

Answer $5\frac{7}{8}$ miles

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

$4\frac{3}{4} + 5\frac{1}{8} + 0 + 6\frac{1}{4} = 16\frac{1}{8}$

$22 - 16\frac{1}{8} = 5\frac{7}{8}$

Answer Jen ran $5\frac{7}{8}$ miles on Friday miles

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The distance Jen must run on Friday is determined correctly using sound procedures.

GUIDE PAPER 2

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

Answer $5\frac{7}{8}$ miles

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The distance Jen must run on Friday is determined correctly using sound procedures. The addition of $11 + 5\frac{1}{8} = 16\frac{1}{8}$ is performed mentally: its omission from the written work does not detract from the response.

GUIDE PAPER 3

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

4 6/8+5 1/8+0+6 2/8=16 1/8
22-16 1/8= 5 7/8
3/4=6/8
1/4=2/8
answer:5 7/8 miles

Answer 5 7/8 miles

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The distance Jen must run on Friday is determined correctly using sound procedures.

GUIDE PAPER 4

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

$4\frac{3}{4} + 5\frac{1}{8} + 0 + 6\frac{1}{4} = 16\frac{1}{8}$

Jen must run on Friday to reach her goal are $6\frac{1}{2}$ miles

Answer $6\frac{1}{2}$ miles

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The total distance Jen already ran is calculated correctly; however, the distance she must run on Friday is incorrect. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

$$4\frac{6}{8} + 5\frac{1}{8} + 0 + 6\frac{2}{8} = 16\frac{1}{8}$$

$$22 - 16\frac{1}{8} = 5\frac{9}{18} \div \frac{9}{9} = 5\frac{1}{2}$$

Answer 5.5 miles

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The total distance Jen already ran is calculated correctly; however, the distance she must run on Friday is incorrect due to a calculation error. The response contains an incorrect solution but applies an appropriate process.

GUIDE PAPER 6

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work. $4\frac{3}{4}+5\frac{2}{4}=10\frac{1}{4}$

$5\frac{1}{8}=5\frac{2}{4}$

$10\frac{1}{4}+6\frac{1}{4}=16\frac{2}{4}$

$16\frac{2}{4}+5\frac{2}{4}=22$ $\quad 5\frac{2}{4}$

Answer $5\frac{2}{4}$ miles

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The total distance Jen already ran is calculated incorrectly (5⅛ is converted to 5¾); however, the error is followed through and the difference between the calculated value and the goal of 22 is provided as the solution. The response contains an incorrect solution but applies an appropriate process.

GUIDE PAPER 7

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

$$+\frac{6\frac{1}{4}}{3}$$
$$7\ \frac{1}{4}$$

Answer 7 and 1 forth miles

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. The work and solution are irrelevant to the task.

45

Jen's goal is to run a total of 22 miles in five days. The table below shows her log for the number of miles she ran on Monday, Tuesday, Wednesday, and Thursday.

JEN'S RUNNING LOG

Day	Distance (miles)
Monday	$4\frac{3}{4}$
Tuesday	$5\frac{1}{8}$
Wednesday	0
Thursday	$6\frac{1}{4}$
Friday	?

How many miles must Jen run on Friday to reach her goal?

Show your work.

Answer 5.875 miles

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. Per Scoring Policy #3, a correct answer with no work shown receives no credit.

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.

Answer _____

EXEMPLARY RESPONSE

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.

$8.25x = (7 \times 12) - 34.5$ *or equivalent*
$8.25x = 84 - 34.5$
$8.25x = 49.5$
$x = 6$

or other valid process

Answer 6 sections of rope

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.

$84 = 8.25x + 34.5$

$-34.5 \quad -34.5$

$\frac{8.25x}{8.25} = \frac{49.5}{8.25}$

$x = 6$

Answer 6 sections

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The equation is correct and is solved correctly using sound procedures.

GUIDE PAPER 2

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

12 × 7 = 84

Show your work.

84 inches total

$8\frac{1}{4}n + 34.5 = 84.0$

$-34.5 \quad -34.5$

$\frac{8\frac{1}{4}n}{8\frac{1}{4}} = \frac{49.5}{8\frac{1}{4}}$

$\frac{49.5}{1} \div 8\frac{1}{4} = \frac{49.5}{1} \times \frac{4}{33} = \frac{198}{33}$

$\frac{198}{3} = 6$

Answer 6 $8\frac{1}{4}$ inch ropes

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The equation is correct and is solved correctly using sound procedures. A transcription error from $^{198}/_{33}$ to $^{198}/_{3}$ is considered inconsequential and does not detract from the response.

GUIDE PAPER 3

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.

$S=(84-34.5) \div 8\frac{1}{4}$

$S = 49.5 \div 8.25$

$S = 6$

Answer 6 sections of rope

$S=(84-34.5)\div 8.25$

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The equation is correct and is solved correctly using sound procedures.

GUIDE PAPER 4

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.

7
· 12
84

84 − 34.5 = 49.5

49.5 ÷ 8.25 = 6

Answer 6 sections

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The number of rope sections is calculated correctly; however, the equations in the work do not contain a variable to be solved for. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.

7 feet: 84 in. Equation: $(84 - 34.5) \div 8.25$

① $(84 - 34.5) \div 8.25$

② $84 - 34.5 = 49.5$

③ $49.5 \div 8.25 = 6$

$(84 - 34.5) \div 8.25 = 6$

Answer 6 sections

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The number of rope sections is calculated correctly; however, the equation does not include a variable to be solved for and is only an expression being evaluated. The response correctly addresses only some elements of the task.

GUIDE PAPER 6

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.

84 in
− 34.5
49.5 ÷ 8.25

Answer 6

Score Point 1 (out of 2 points)

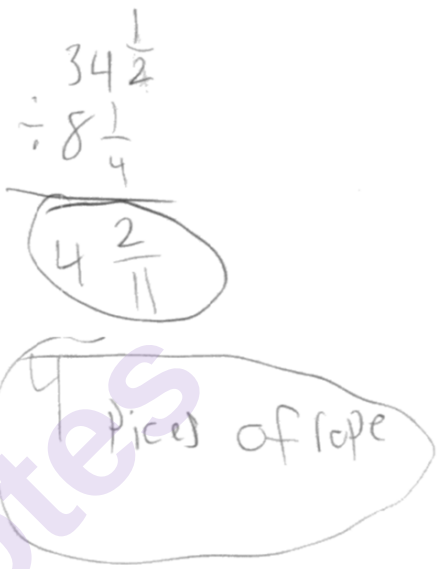
This response demonstrates only a partial understanding of the concepts in the task. The number of rope sections is calculated correctly; however, no equation is provided. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.



Answer 4

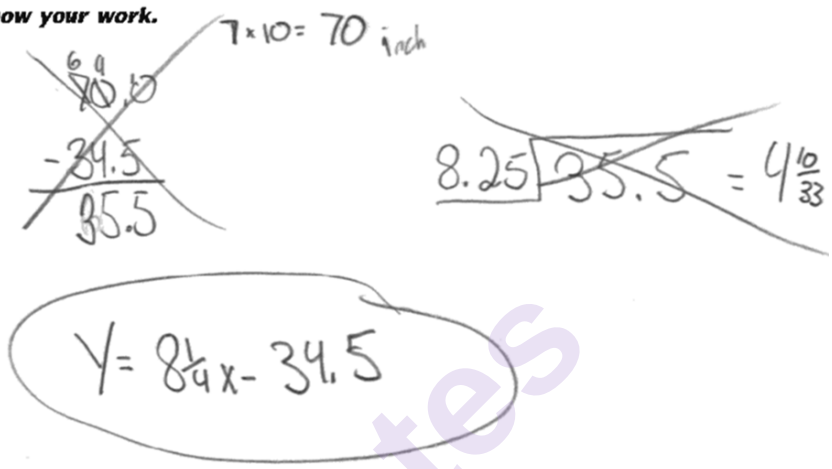
Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. The work is incorrect and does not contain an equation. The solution is incorrect.

46

Mario is setting up a new tent during a camping trip. The tent came with 7 feet of rope. The instructions are to use 34.5 inches of the rope to tie a tarp on top of the tent. Then, the remaining rope should be cut into $8\frac{1}{4}$-inch sections to tie the tent to stakes in the ground. Mario will use all of the rope as instructed. Write and solve an equation to determine the number of $8\frac{1}{4}$-inch sections of rope Mario can cut from the rope.

Show your work.



Answer 4 Sections

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. The equation and the solution are incorrect. Per Scoring Policy #6, only the work that has not been crossed out is scored.

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

Answer _____ scooters

EXEMPLARY RESPONSE

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

$725 + 579 + 696 = 2000$
$2000 \times 1.12 = 2240$

OR

$\frac{112}{100} = \frac{x}{2000}$ $\quad x = \frac{224000}{100}$

$224000 = 100x$ $\quad x = 2240$

or other valid process

Answer 2240 scooters

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

725+579+696

Show your work.

725+579+696 = 2000

0.12 X 2000 = 240 ← 12%

100% 12% 112%
2000 + 240 = 2240

Answer 2240 scooters

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The number of scooters sold in Year 4 is calculated correctly using sound procedures.

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

$725+579+696=2000$

$$\frac{x}{2000} = \frac{112}{100}$$

$2000 \times 112 = 224000$

$224000/100=2240$

Answer 2240 scooters

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The number of scooters sold in Year 4 is calculated correctly using sound procedures.

GUIDE PAPER 3

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

$725 + 579 + 696 = 2000$
$112\% \div 100 = 1.12$
$2000\,(1.12) = 2240$

Answer 2240 scooters

Score Point 2 (out of 2 points)

This response demonstrates a thorough understanding of the concepts in the task. The number of scooters sold in Year 4 is calculated correctly using sound procedures.

GUIDE PAPER 4

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

$\frac{112}{1000}$
$725 + 579 + 696 = 2000$
$\frac{112}{1000} = \frac{x}{2000}$
$1000 \times 2 = 2000$
$112 \times 2 = 224$
$x = 224$

Answer 224 scooters

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. A proportion is used to solve the problem; however, the percentage is incorrectly given a denominator of 1000 rather than 100 on the left-hand side of the equation. The response correctly addresses only some elements of the task.

GUIDE PAPER 5

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

Year 1 $725 \times 112\% = 812\%$

Year 2 $579 \times 112\% = 648.48\%$

Year 3 $696 \times 12\% + = 779.52\%$

2239.99

During the previous three years combined the determination of these three years is that they made 2239.99 sales.

Answer 2239.99 scooters

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. The calculations to determine 112% of each individual year are correct; however, they are written with percent signs and a calculation error occurs when adding them to find the combined total. The response contains an incorrect solution but applies an appropriate process.

GUIDE PAPER 6

47

The table below shows the number of scooters sold at a store during a three-year period.

1304
× 112
2608
13040
+ 130400
146,048

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

146.048 ≈ 1460

725
+ 579
1304

$\frac{112}{100} = \frac{x}{1304} = \frac{100x}{100} = \frac{146,048}{100}$

Answer 1460 scooters

Score Point 1 (out of 2 points)

This response demonstrates only a partial understanding of the concepts in the task. Year 3 is not included in the calculations, although the process is otherwise correct. The response correctly addresses only some elements of the task.

GUIDE PAPER 7

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

2000

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

1785

$\frac{112}{100} = \frac{2000}{x}$

200000

2000
- 1785
215

696
+ 215
911

Answer 911 scooters

Score Point 0 (out of 2 points)

Although some elements may contain correct procedures, holistically this response is not sufficient to demonstrate even a limited understanding of the task. The proportion written is incorrect, and the subsequent subtraction and addition show no understanding of what the solution, x, represents.

47

The table below shows the number of scooters sold at a store during a three-year period.

SCOOTER SALES

Year	Number Sold
Year 1	725
Year 2	579
Year 3	696

In Year 4, the store sold 112% of the total number of scooters sold during the previous three years combined. Determine the number of scooters sold in Year 4.

Show your work.

$696 \times .112 = 77.952 + 696 = 54254$

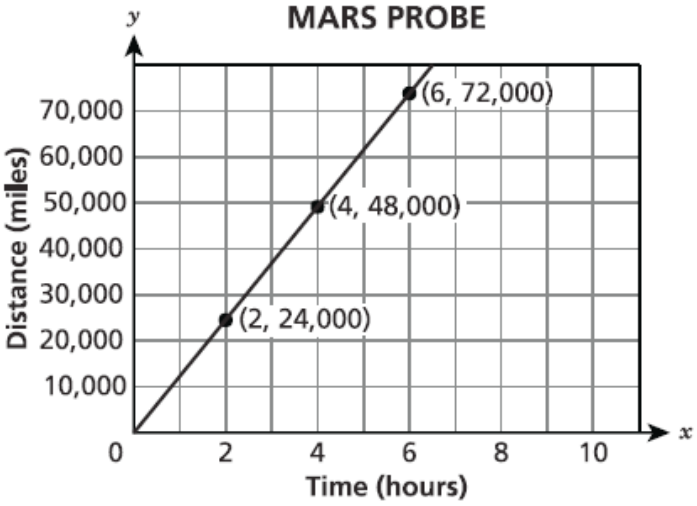
Answer 54254 scooters

Score Point 0 (out of 2 points)

This response is not sufficient to demonstrate even a limited understanding of the task. The work is incoherent and the solution is incorrect.

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Determine the number of miles the probe travels in 5.5 hours.

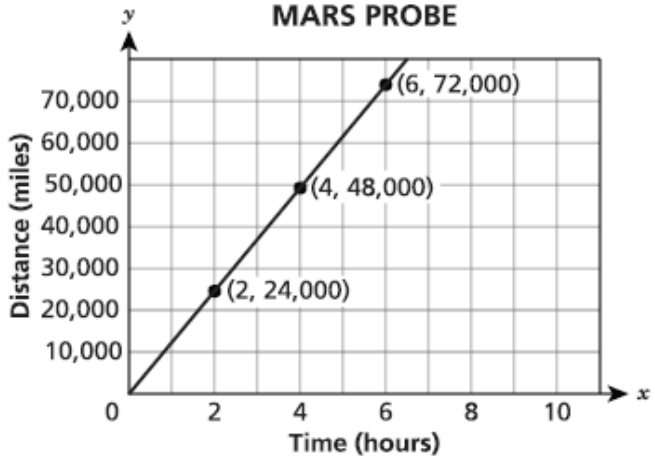
Show your work.

Answer _____ miles

EXEMPLARY RESPONSE

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes, the graph is proportional because it is a straight line that goes through the origin.

OR

Yes, the graph is proportional because for any point on the line, the y-coordinate divided by the x-coordinate always gives you the same number.

or other valid explanation

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

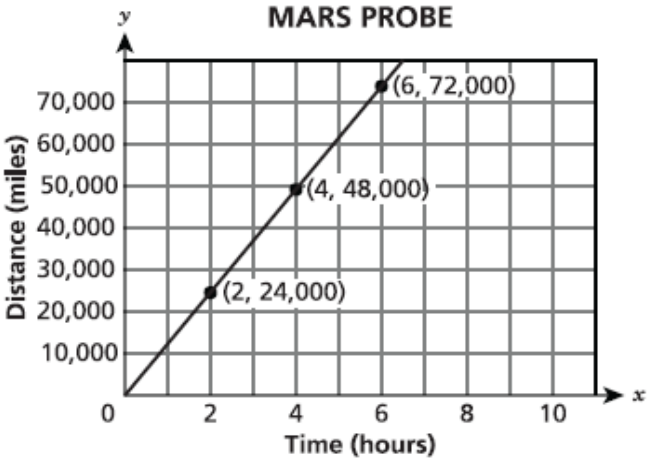
$\frac{24{,}000}{2} = 12{,}000$ *or other valid process*

$12{,}000 \times 5.5 = 66{,}000$

Answer 66,000 miles

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes, because it is a straight line and it goes through the orgin.

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

$72000 \div 6 = 12000$
$48000 \div 4 = 12000$
$24000 \div 2 = 12000$

$5.5 \times 12000 = 66000$

Answer 66000 miles

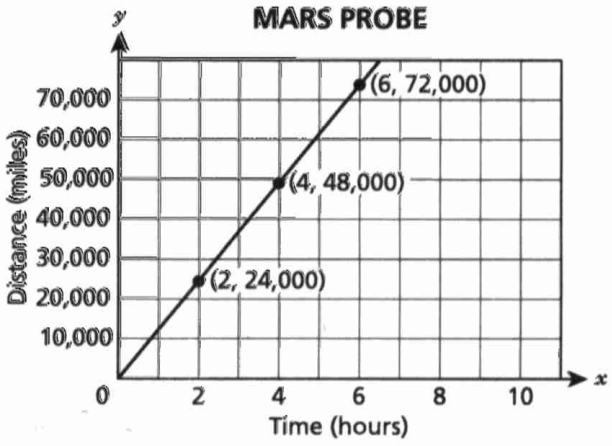
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the concepts in the task. The explanation is correct and the number of miles the probe travels is calculated correctly using sound procedures.

GUIDE PAPER 2

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



x = hours
y = miles

24,000 ÷ 2 = 12,000
48,000 ÷ 4 = 12,000
72000 ÷ 6 = 12000

Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes, because if divied the time and miles that is shown on the graph. You will get 12,000

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

12,000 x 55 = 66000

Answer 66000 miles

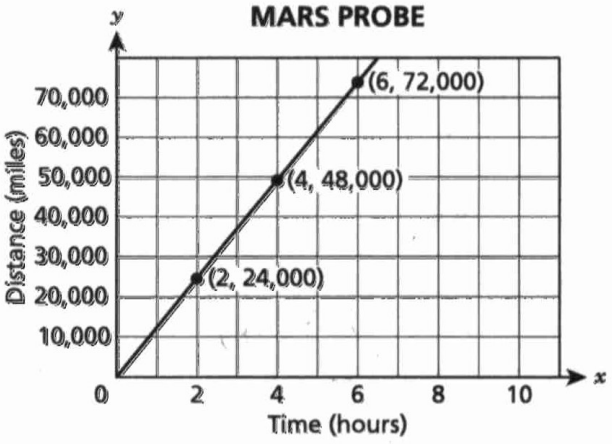
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the concepts in the task. The explanation is correct and the number of miles the probe travels is calculated correctly using sound procedures.

GUIDE PAPER 3

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes the graph represents a proportional relationship. The line is straight and it goes to the orgin.

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

$k = \frac{24,000}{2}$ $k = 12,000$

$12000 \times 5.5 = 66000$

$k = 66000$

Answer 66000 miles

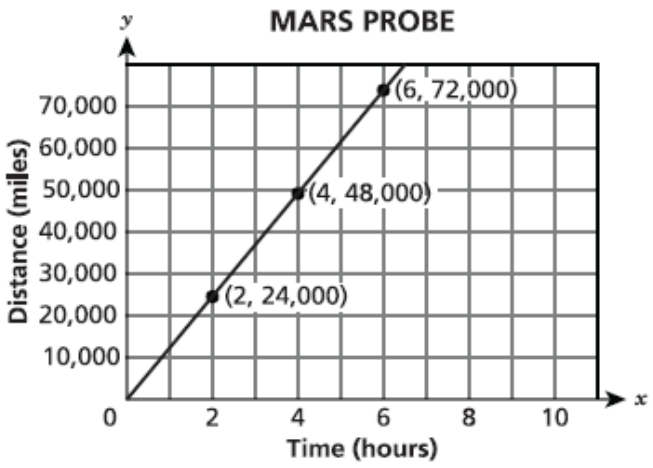
Score Point 3 (out of 3 points)

This response demonstrates a thorough understanding of the concepts in the task. The explanation is correct and the number of miles the probe travels is calculated correctly using sound procedures. Although the incorrect statement "$k = 66000$" appears in the work, the value of k is also stated correctly twice and the mathematical operations are correct: the error is considered inconsequential and does not detract from the response.

GUIDE PAPER 4

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes, because the Mars probe starts at (0,0)

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

$48,000 \div 4 = 12,000\text{mph}$
$12000 \times 5.5 = 66,000$

Answer 66,000 miles

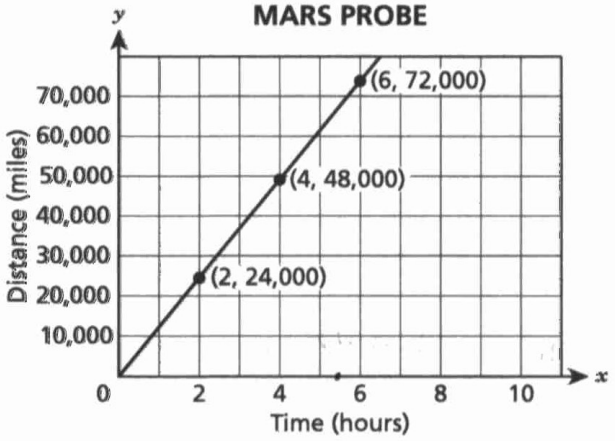
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the concepts in the task. The number of miles the probe travels is calculated correctly; however, the explanation is incomplete. It does not mention the necessary criterion of having a constant rate. The response appropriately addresses most, but not all aspects of the task.

GUIDE PAPER 5

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes because the line showing the data is strat.

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

12000
× 5.5
60000
+600000
66000.0

Answer 66,000 miles

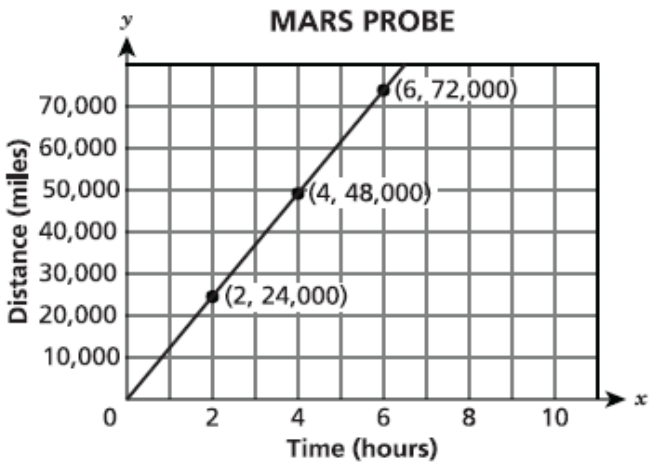
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the concepts in the task. The number of miles the probe travels is calculated correctly; however, the explanation is incomplete. It does not mention the necessary criterion of passing through the origin. The response appropriately addresses most, but not all aspects of the task.

GUIDE PAPER 6

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes the line starts at the orgin and stays straight.

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

$25000 \div 2 = 12500 \times 5.5 = 68750$

Answer 68750 miles

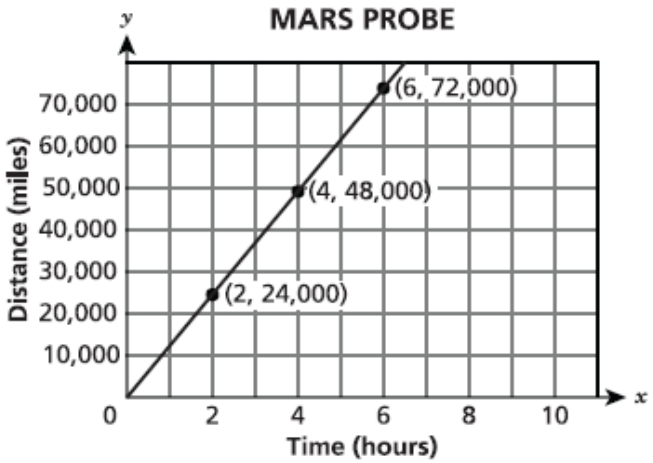
Score Point 2 (out of 3 points)

This response demonstrates a partial understanding of the concepts in the task. The explanation is correct; however, the solution for the number of miles the probe travels is incorrect due to a transcription error using the value 25000 instead of 24000. The response contains an incorrect solution but provides sound procedures and explanations.

GUIDE PAPER 7

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

yes because the proportion goes up by 24,000 every time

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

48000+18000=66000

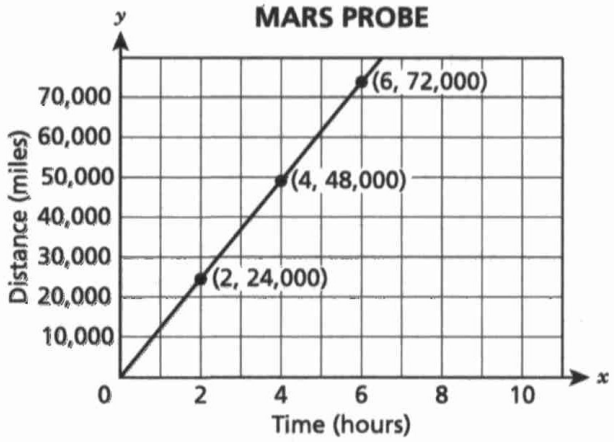
Answer 66,000 miles

Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the concepts in the task. The number of miles the probe travels is calculated correctly; however, the required work is limited and the explanation is vague. It is not clear how the value 18000 is obtained and while the phrase "*24,000 every time*" may indicate a constant rate, the wording is imprecise and it is not the correct value of the unit rate.

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

yes because the line goes through the origin.

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

5.5
x10000
55,000

Answer 55,000 miles

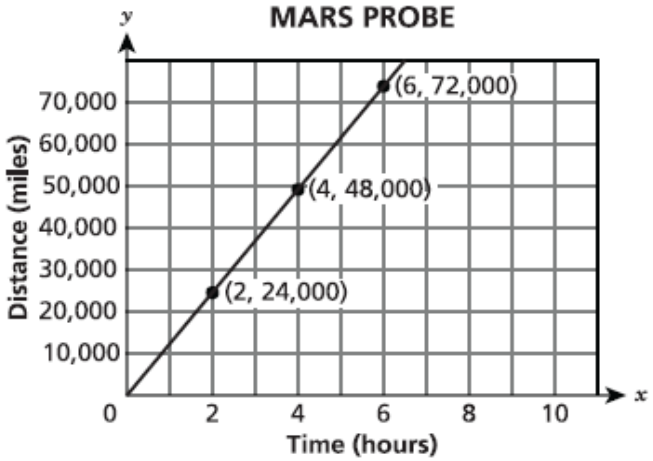
Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the concepts in the task. The explanation correctly identifies passing through the origin as a criterion for proportionality; however, a constant rate is not mentioned and the solution for the number of miles the probe travels is incorrect. The unit rate used is incorrect and the work does not show how the value 10000 was obtained. The response addresses some elements of the task correctly but reaches an inadequate solution.

GUIDE PAPER 9

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

$1 = 12,000 2 = 24,000$
$4 = 48,000$
$6 = 72,000$
Each set of numbers are equal to each other

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

For every even number the miles are increased by 24,000 so half of that is 12,000

Answer 60,000 miles

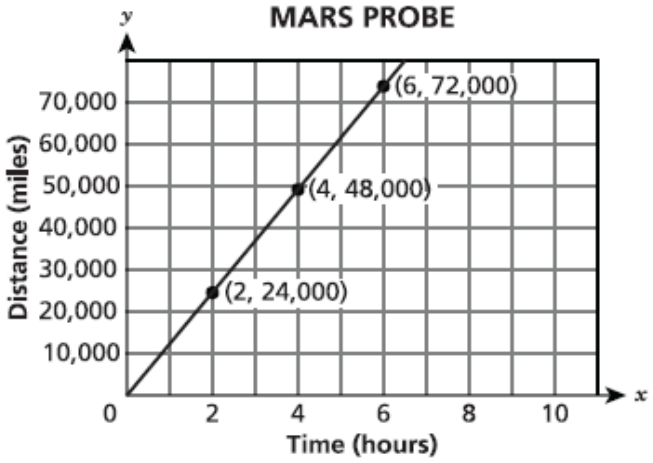
Score Point 1 (out of 3 points)

This response demonstrates only a limited understanding of the concepts in the task. Although the explanation is insufficient and the solution for the miles the probe travels is incorrect, holistically the work shows some understanding of the unit rate and correctly calculates its value. The response addresses some elements of the task correctly, but reaches an inadequate solution.

GUIDE PAPER 10

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

$48,000 \div 24,000 = 2$
$72,000 \div 48,000 = 1.5$
i dont think this will be a proportional relationship because one answer equals 2 and the other equals 1.5

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

$2 + 1.5 = 3.5$
$5.5 \times 3.5 = 19.25$

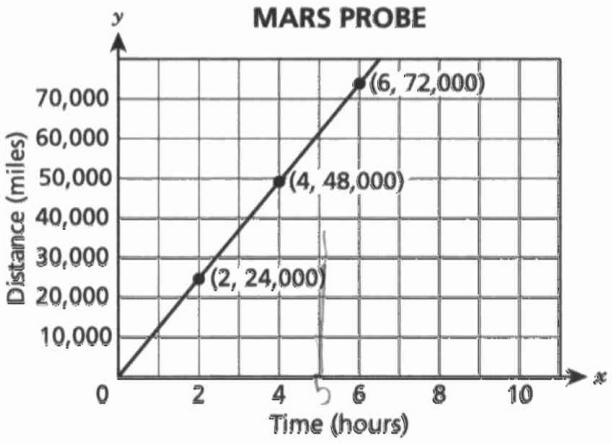
Answer 19.25 miles

Score Point 0 (out of 3 points)

Holistically, this response is not sufficient to demonstrate even a limited understanding of the task. Although there is some indication that proportionality requires equal ratios, the comparison is made on incorrect ratios. The work and solution for the distance the probe travels are incorrect.

48

The graph shows the relationship between x, the amount of time in hours, and y, the distance traveled in miles, by a probe before it reaches Mars.



Does the graph represent a proportional relationship? Why or why not?

Justify your answer.

Yes because the numbers keep rising and improving.

Determine the number of miles the probe travels in 5.5 hours.

Show your work.

Answer B, 5K, 006 miles

Score Point 0 (out of 3 points)

This response is not sufficient to demonstrate even a limited understanding of the task. The explanation and the answer are incorrect, with no work shown.