

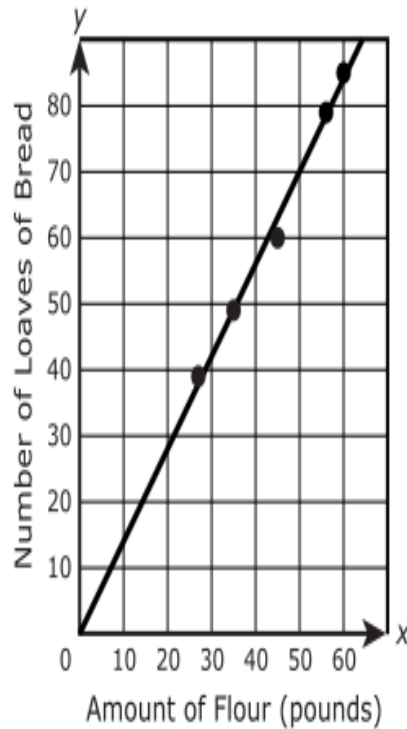
Math
Released Item 2016

Grade 8

Bakery Makes Small Batches
M21574

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

Flour (pounds)	Loaves of Bread
35	49
45	60
27	39
60	85
56	79



- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

Enter your equation, your answer, and your work or explanation in the space provided.

Rubric	
Score	Description
3	<p>Student response includes each of the following 3 elements.</p> <ul style="list-style-type: none"> • Modeling component = 1 point <ul style="list-style-type: none"> ◦ The student writes a correct equation of the line using a reasonable constant of proportionality. • Computation component = 1 point <ul style="list-style-type: none"> ◦ The student provides the correct prediction of loaves that can be made using his or her equation. • Modeling component = 1 point <ul style="list-style-type: none"> ◦ The student provides a valid explanation or work. <p>Sample Student Response:</p> <p>The slope of the line would be the constant of proportionality for the line shown. The point (35, 49) is really close to the line which would make the constant of proportionality $\frac{49}{35} = \frac{7}{5}$. The equation of the line would be $y = \frac{7}{5}x$. The number of loaves of bread from 85 pounds of flour would be $\frac{7}{5}(85) = 119$ loaves.</p> <p>(Student could use one of the other points that is close to the line or use the slope formula to find the slope, m. The prediction can then be taken from the equation written.) A correct linear equation in any form is acceptable.</p>
2	Student response includes 2 of the above elements.
1	Student response includes 1 of the above elements.
0	Student response is incorrect or irrelevant.

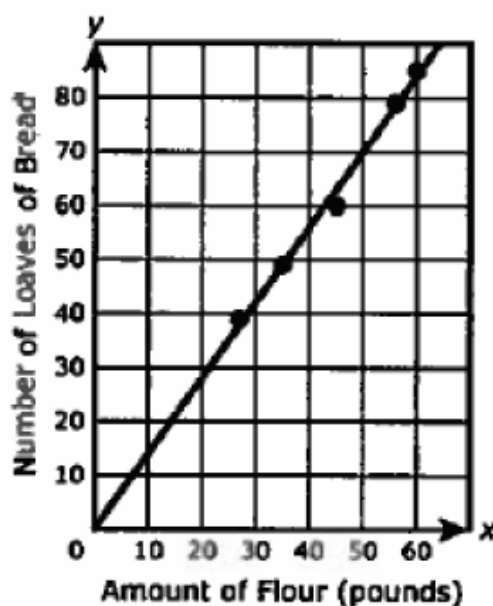
Anchor Set

A1 – A8

With Annotations

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

Flour (pounds)	Loaves of Bread
35	49
45	60
27	39
60	85
56	79



- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

$$y = 1.4x$$

With 85 pounds of flour you could make 119 loaves of bread. I got this answer by doing rise over run on the graph and finding that $y = 1.4x$. Then I plugged 85 in for x and got 119.

Annotation

Anchor Paper 1

Score Point 3

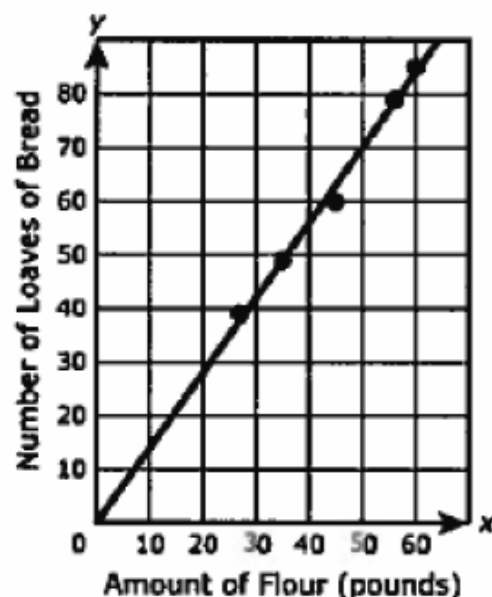
This response receives full credit. It includes each of the three required elements:

- The student provides a correct equation of the line using a reasonable constant of proportionality ($y=1.4x$).
- The correct prediction of loaves that can be made using the student's equation is provided (119).
- The response shows a correct explanation (I got this answer by doing rise over run on the graph and finding that $y=1.4x$. Then I plugged 85 in for x and got 119).

The response explains how the constant of proportionality (1.4) was determined (doing rise over run on the graph) and how the number of loaves of bread (119) was determined (I plugged 85 in for x and got 119).

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

Flour (pounds)	Loaves of Bread
35	49
45	60
27	39
60	85
56	79



- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

50 lbs of *flour* = 70 loaves of bread.

$70 \div 50 = 1.4$. $y \div x = 1.4$. $85 \times 1.4 = 119$.

You could make about 119 loaves of bread with 85 lbs of flour.

Annotation

Anchor Paper 2

Score Point 3

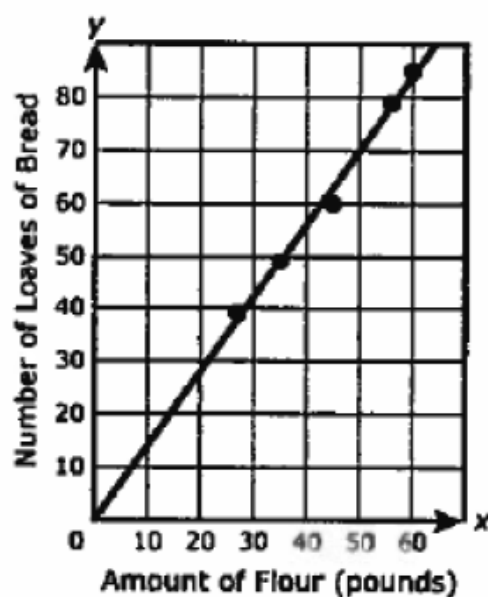
This response receives full credit. It includes each of the three required elements:

- The student provides a correct equation of the line using a reasonable constant of proportionality ($y \div x = 1.4$).
- The correct prediction of loaves using the student's equation is provided (119).
- The response shows correct work or explanation ($70 \div 50 = 1.4$, $85 \times 1.4 = 119$).

It is clear from the graph that the line goes through the point where pounds = 50 and loaves of bread = 70

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

Flour (pounds)	Loaves of Bread
35	49
45	60
27	39
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56	79



- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

$$y = 1.4x$$

$$85 \times 1.4 = 119$$

Annotation

Anchor Paper 3

Score Point 2

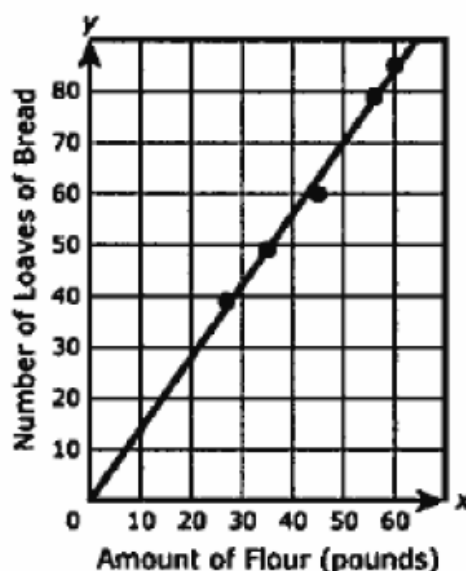
This response receives partial credit. It includes two of the three required elements:

- The student provides a correct equation of the line using a reasonable constant of proportionality ($y=1.4x$).
- The correct prediction of loaves that can be made using the student's equation is provided (119).

The work provided ($85 \times 1.4 = 119$) is insufficient. The work or explanation must include how the constant of proportionality for the equation (1.4) was determined to receive credit.

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

Flour (pounds)	Loaves of Bread
35	49
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- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

$$49 \div 35 = 1.4$$

$$1.4 \times 85 = 119$$

you could make 119 loaves of bread from 85 pounds of flour.

Annotation

Anchor Paper 4

Score Point 2

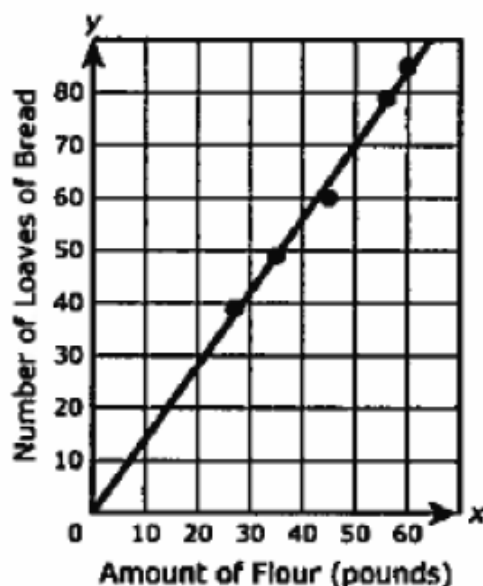
This response receives partial credit. It includes two of the three required elements:

- The correct prediction of loaves that can be made is provided (119).
- The response shows correct work ($49 \div 35 = 1.4$, $1.4 \times 85 = 119$). When a correct equation is not provided, the response will receive credit for work or explanation that indicates how the number of loaves was determined.

A correct equation of the line is not provided.

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

119 because $1.4 \square \times 85$

Annotation

Anchor Paper 5

Score Point 1

This response receives partial credit. It includes one of the three required elements:

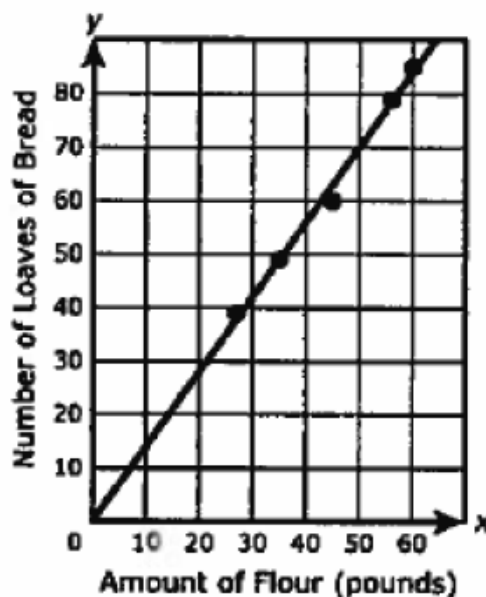
- The correct prediction of loaves that can be made is provided (119). When a correct equation is not provided, the response will receive credit for a correct answer of 119.

A correct equation of the line is not provided.

The explanation provided (because 1.4×85) is insufficient for credit. There is no indication why 1.4 is used as the multiplier.

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

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

Annotation

Anchor Paper 6

Score Point 1

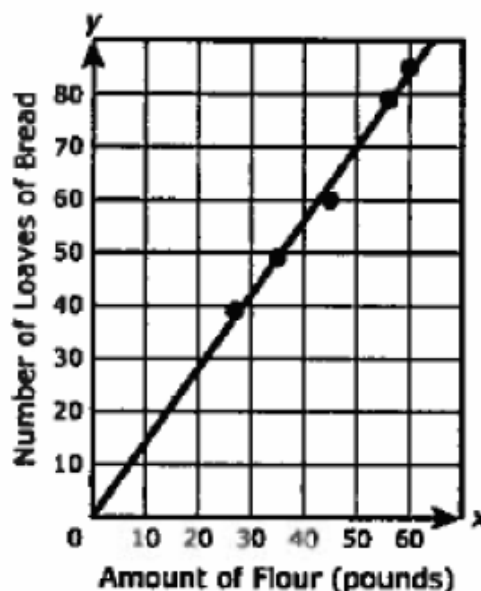
This response receives partial credit. It includes one of the three required elements:

- The student provides a correct equation of the line using a reasonable constant of proportionality ($y = 1\frac{1}{3}x$).

The prediction of loaves of bread that can be made and the work is missing.

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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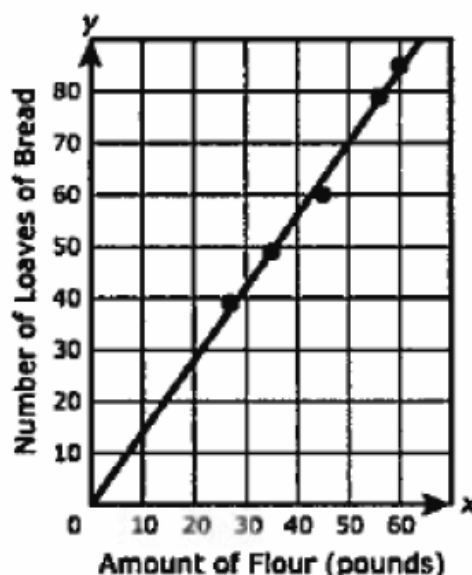
- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

$Y = 60$ I have 60 pounds of flower i can make 85 loaves of bread because it says it on the chart.

Annotation
Anchor Paper 7
Score Point 0
<p>This response receives no credit. It includes none of the three required elements:</p> <p>The equation of the line is missing.</p> <p>A correct prediction of loaves that can be made with 85 pounds of flour is not provided. The response provides the pounds of flour from the graph (60) that would produce 85 loaves.</p> <p>The response does not show any work or explanation.</p>

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

$$x = 1.5y$$

$$85 = 1.5y$$

56 loaves of bread

Annotation
Anchor Paper 8
Score Point 0
<p>This response receives no credit. It includes none of the three required elements:</p> <p>The equation provided ($x=1.5y$) is incorrect, the variables are reversed.</p> <p>The prediction of the number of loaves (56) is incorrect. Although the student used the equation, the equation is not considered relevant because it is not consistent with any information from the table or graph.</p> <p>The work ($85=1.5y$) is incorrect.</p>

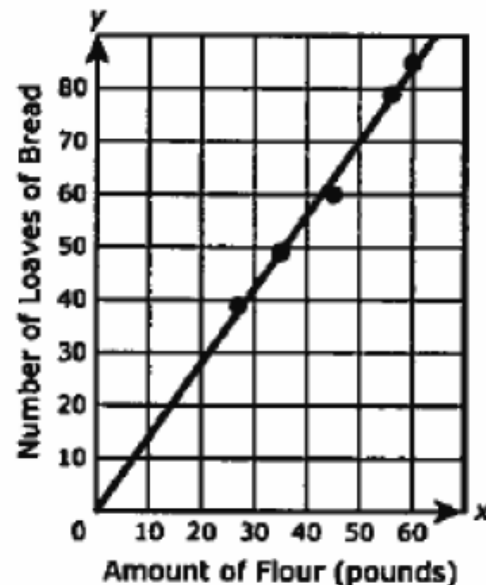
Practice Set

P101 - P105

No Annotations Included

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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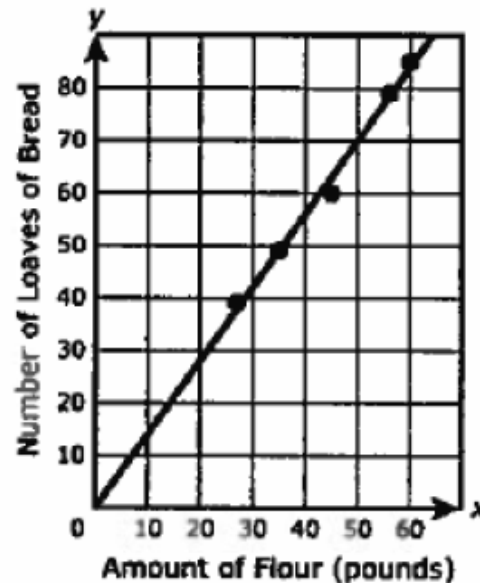
Calculator interface showing a toolbar with buttons for undo, redo, clear, delete, plus, minus, multiply, divide, square root, power, and equals. Below the toolbar is a display area showing the equation $y = 1.4x$ and the text "85 pounds of flour will make 119 loaves of bread".

$y = 1.4x$
85 pounds of flour will make 119 loaves of bread

- Numbers
- Arithmetic and Units
- Exponents and Roots
- Relations
- Geometry
- Groups

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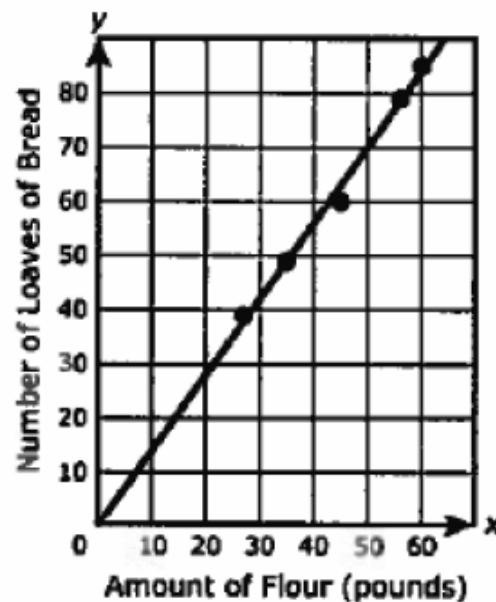


- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

$$y = x \times 2 - 5$$

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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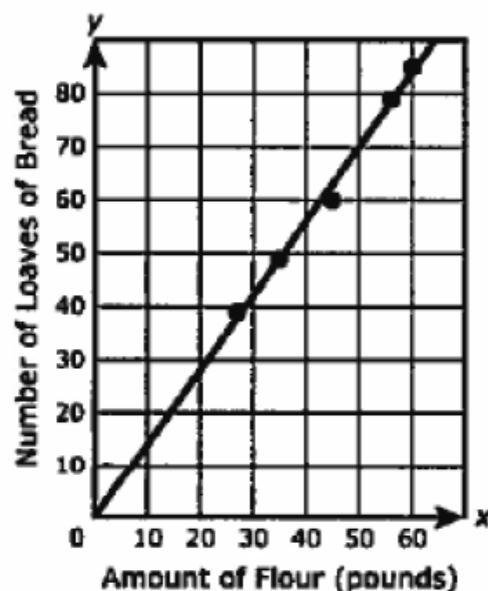


- Write an equation that can be used to model the number of loaves of bread, y , that can be made from x pounds of flour.
- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

119 loaves of bread can be made with 85 pounds of flour.

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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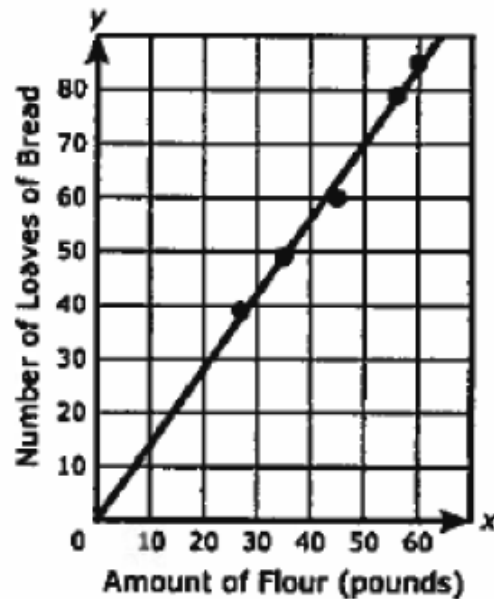
$$y = 7 \div 5x$$

$$y = 7 \div 5(85)$$

$$y = 119$$

A bakery makes small batches of bread daily. Each day, the bakery records the amount of flour used and the number of loaves of bread made. All loaves are approximately the same size. The table and graph show the bakery's data for five days.

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- Use your equation to predict the number of loaves that could be made from 85 pounds of flour.
- Show your work or explain your answer.

≈

$$y = 1.4x$$

$$85 = 1.4x$$

$$85 \div 1.4 = 60$$

60 loaves

► Numbers

► Arithmetic and Units

► Exponents and Roots

► Relations

► Geometry

► Groups

Practice Set

Paper	Score
P101	2
P102	0
P103	1
P104	2
P105	1