11/7

Cross Cancel = Pre-Simplify

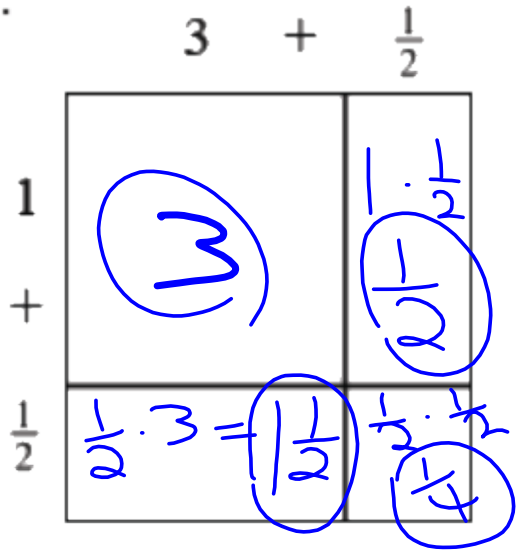
$\frac{2}{7} \cdot \frac{14}{21} = \frac{4}{21}$

$\frac{8}{27} \cdot \frac{9}{14} = \frac{4}{3} \cdot \frac{1}{7} = \frac{4}{21}$

Ronna is making a small flowerbed that is $3\frac{1}{2}$ feet by $1\frac{1}{2}$ feet. She needs to find the area so she can add the correct amount of fertilizer to the soil.

$3\frac{1}{2} \cdot 1\frac{1}{2}$

On your paper, draw the generic rectangle.



$3 + 1\frac{1}{2} + \frac{1}{2} + \frac{1}{4}$

$3 + 2 + \frac{1}{4} = 5\frac{1}{4}$

Write the area in each of the four parts of the drawing. Then find the total area.

$3\frac{1}{2} \cdot 1\frac{1}{2} = 5\frac{1}{4}$

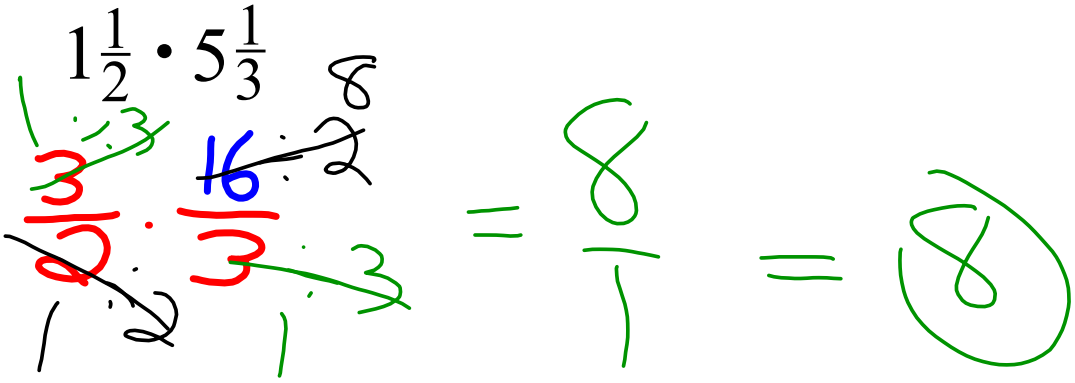
or

$3\frac{1}{2} \cdot 1\frac{1}{2}$

$\frac{7}{2} \cdot \frac{3}{2} = \frac{21}{4} = 5\frac{1}{4}$

$4\overline{)21}$ → 5, -20, 1

$$1\frac{1}{2} \cdot 5\frac{1}{3}$$



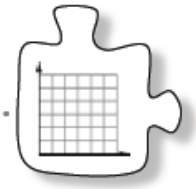
$$2\frac{2}{3} \cdot 1\frac{3}{4}$$

$$\frac{\overset{2}{\cancel{8}}}{3} \cdot \frac{7}{\underset{1}{\cancel{4}}} = \frac{14}{3} = 4\frac{2}{3}$$

$$-2\frac{1}{4} \cdot -1\frac{3}{5}$$

$$-\frac{9}{\cancel{4}_{1}} \cdot -\frac{\cancel{8}^{2}}{5} = \frac{18}{5} = 3\frac{3}{5}$$

2.3.1 How can I make a useful graph?



Choosing a Scale and Graphing Data

Graphs can be useful tools for finding relationships and making predictions. In this lesson, you will work with your team to make choices about how to set up a graph in the most useful way, depending on its purpose. As you work, use the questions below to help focus your discussion.

Does our data fit? Can we see it clearly?

How can we make it clearer?

How can we make a prediction?

Will a different choice make it easier to predict?

2-106. PAYTON'S BATS

Payton loves bats. She wants to know if she can predict the wingspan of a bat by knowing the length of its body.

Payton looked up measurements for five species of bats. For each species, she found the typical body length (from the head to the tail) and the wingspan (from the tip of one wing to the tip of the other). She organized the information in the table below.

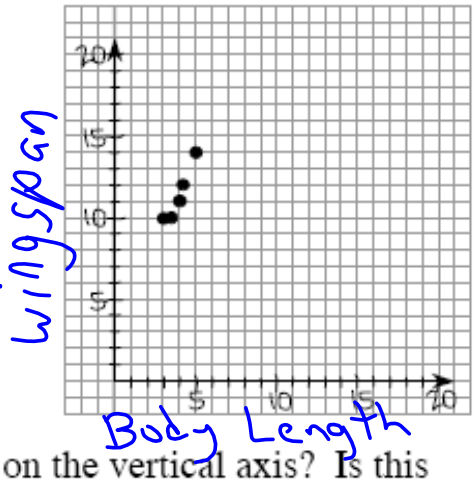
Bats in Tennessee – Typical Body Measurements

Type of Bat	Length (inches)	Wingspan (inches)
Big Brown Bat	5	14
Little Brown Bat	3.5	10
Brazilian Free-Tailed Bat	2.35	12
Evening Bat	4	11
Indiana Bat	3	10

Work with your team to decide how Payton can use the data in the table to predict the wingspan of a bat if she knows its body length. Explain how she would do this.

2-107

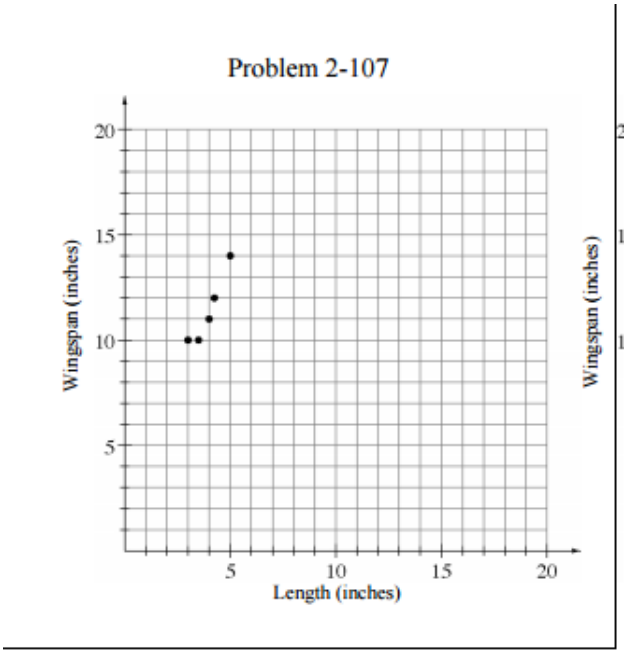
Payton has started a graph. Her work is shown at right and on the Lesson 2.3.1A Resource Page.



a. Which axis represents the length of a bat? Which axis represents the wingspan? How can you tell? When you are sure, label each axis.

b. What is the **scale** on the horizontal axis? In other words, what is the length of each single unit on the horizontal axis? What is the scale on the vertical axis? Is this scale appropriate for graphing this data? Discuss this question with your team and write down your ideas.

c. Payton wants her data to be spread out so that she can see relationships clearly. Does this graph allow her to do that? Are there any changes she could make to her graph that might make it clearer? Be prepared to explain your ideas to the class.



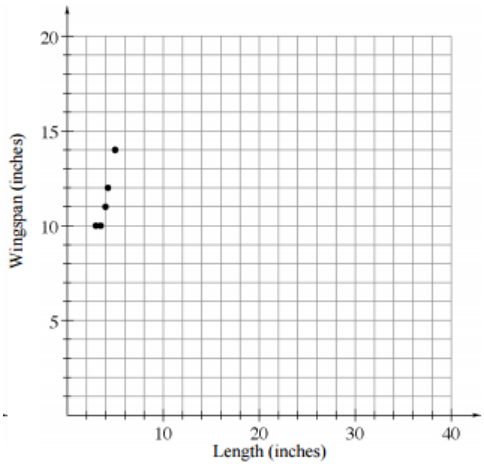
2-108

Payton has an idea. *"I will make the numbers on the horizontal axis bigger,"* she says. *"That way, the points will be more spread out and easier to see."*

a. Payton's new axes are drawn on the resource page, also shown at right. How has Payton changed the scale? Will all of her data fit on this new graph?

b. Will Payton's new graph be more useful? Discuss this with your team and then test your ideas by plotting Payton's data points on the new set of axes.

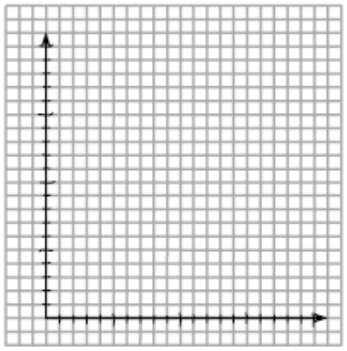
Problem 2-108

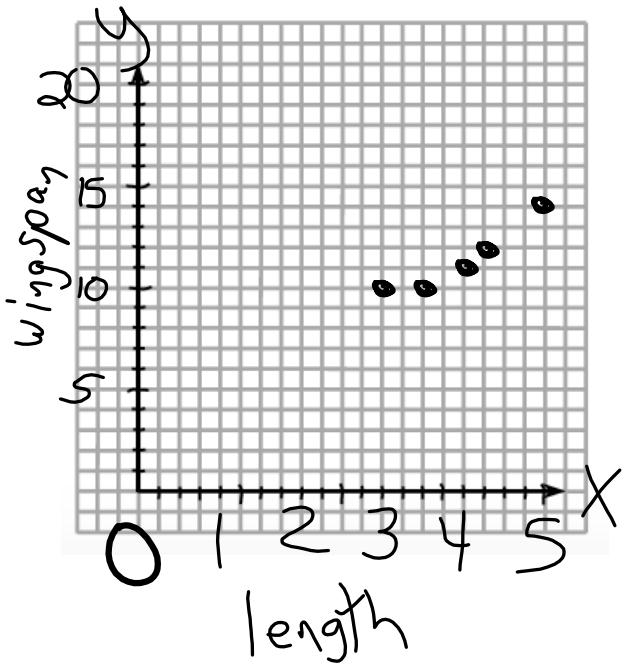


2-109. Payton has come to your team for help.

Use the resource page with a set of axes such as the ones at right to complete the following problems.

- Work with your team to decide on a scale for each axis that will make Payton's data (from problem 2-106) easy to see.
- Then, on your own paper, draw axes, mark your scales, and plot Payton's data points.





Problem 2-109