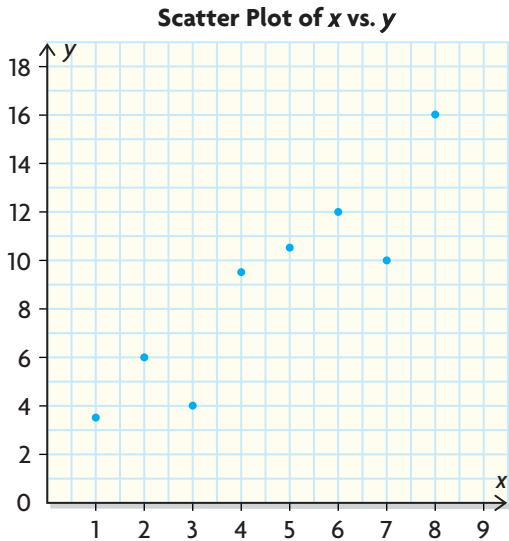


FREQUENTLY ASKED Questions

This scatter plot is used for all of the frequently asked questions:



Q: How can you represent numeric data from an experiment involving two variables?

A: If any value between two plotted values of a variable is possible and meaningful, then the variable is continuous. You can organize the data into a table of values. Then, you can use the values to create a scatter plot. If the data points seem to follow a pattern, you can use a line or a curve to represent the pattern.

Use a solid line or curve if both variables are continuous. Use a dashed line or curve if one or both variables are discrete.

Q: How can you determine a line of best fit?

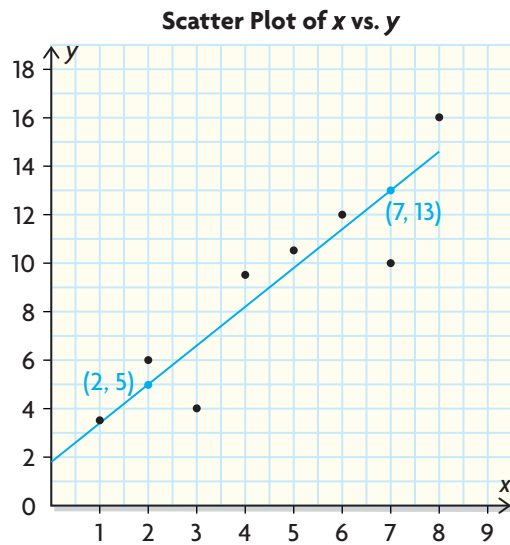
A: First, plot the data on a scatter plot. Then, position your ruler so that the slope of the line roughly follows the pattern of the plotted points. Also, try to position the ruler so that the plotted points are balanced on either side of the line of best fit. It helps if your ruler is transparent.

Study Aid

- See Lesson 6.1, Examples 1 and 2.
- Try Mid-Chapter Review Question 1.

Study Aid

- See Lesson 6.2, Example 1.
- Try Mid-Chapter Review Question 4.

EXAMPLE**Study Aid**

- See Lesson 6.2, Example 2.
- Try Mid-Chapter Review Questions 4 and 5.

Q: How can you determine an equation for a line of best fit?

A: Choose two points on the line and read off their coordinates. Then, determine the slope and use it and the coordinates of one of the points to determine an equation.

EXAMPLE

The coordinates of two points on the line of best fit are $(2, 5)$ and $(7, 13)$.

The slope of the line is

$$\begin{aligned} m &= \frac{13 - 5}{7 - 2} \\ &= 1.6 \end{aligned}$$

So, the equation of the line is $y = 1.6x + b$. To calculate the value of b , substitute the point $(2, 5)$ into the equation to get

$$\begin{aligned} 5 &= 1.6(2) + b \\ 5 - 3.2 &= b \\ 1.8 &= b \end{aligned}$$

The equation of the line of best fit is $y = 1.6x + 1.8$.

PRACTICE Questions

Lesson 6.1

1. Family doctors record the growth of their young patients. At each checkup, Jennifer's younger sister has her height and mass measured.

Height (cm)	58	60	64	68	73	74
Mass (kg)	5.0	6.3	7.3	8.1	8.8	8.2

- Graph the data.
 - Should the graph consist of scattered points or can the points be connected by a line? If the points can be connected by a line, then should the line be solid or dashed? Explain.
 - Does the graph show a relationship between height and mass? If so, describe it.
2. The data show how many babies were born at Cook's Mills Hospital on the first 10 days of a month.

Day	1	2	3	4	5	6	7	8	9	10
Number of Births	8	2	5	5	1	9	1	8	7	1

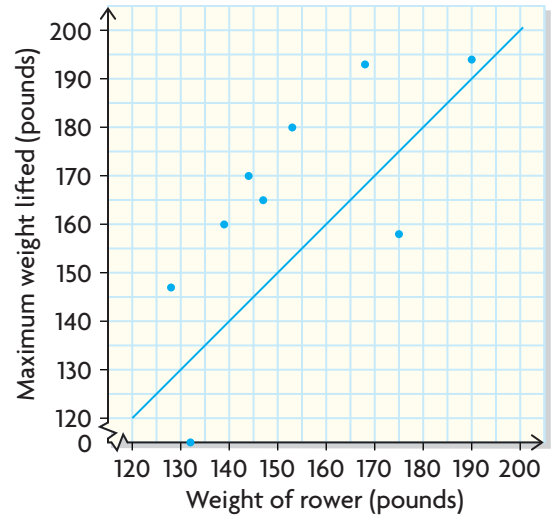
- Plot the data on a scatter plot.
- Describe the pattern of the data.
- Do you think that collecting more data (either including a longer time period or including more hospitals) might change your conclusion in part b)? Explain.

Lesson 6.2

3. The school rowing coach measures the maximum amount of weight that can be lifted by each member of the team.



Maximum Weight Lifted by Members of the Rowing Team



The results are shown in the above scatter plot. Is the line of best fit appropriate? If so, explain. If not, sketch an appropriate line of best fit.

4. Andrew took a hearing test.

The x -values represent times (in seconds) and the y -values represent loudness levels of a test sound.

x	0	1	2	3	4	5	6	8	10
y	0.0	1.0	1.7	2.1	2.4	2.6	2.8	3.1	3.3

- Plot the data on a scatter plot.
 - Sketch a line of best fit.
 - Determine an equation for the line of best fit from part b).
 - Estimate the loudness after 3.7 s.
 - If the test followed the same pattern, when would the loudness reach a level of 4.2?
5. Markus and Joelle had the same set of data. Both students created a scatter plot and drew a line of best fit. They then determined the equations of their lines of best fit and compared their results. Should their answers be the same? Explain.