

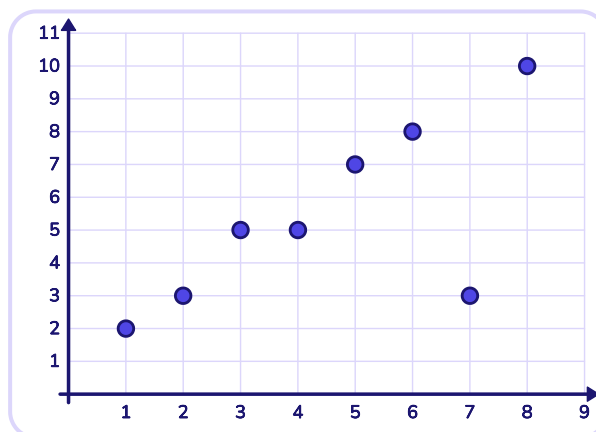
Scatter Plots and Two-Way Tables: math test, Grade 8 – download the PDF

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1 Reading a scatter plot

/ 4 pts

Each point shows a puppy: months of training (horizontal) and number of commands learned (vertical).



- Describe the overall association. (1 pt)
- Identify the outlier and suggest a reason for it. (1 pt)
- How many commands does the puppy trained for 4 months know? (1 pt)
- How many puppies know at least 7 commands? (1 pt)

2 Equation of a trend line

/ 4 pts

A trend line for the money saved (in dollars) after x weeks passes through $(2, 14)$ and $(8, 32)$.

- Find the slope. (1 pt)
- Find the equation of the line. (1 pt)
- Interpret the slope. (1 pt)
- Interpret the y-intercept. (1 pt)

3 Making predictions

/ 3 pts

A model for the length of a weekly run is $y = 1.2x + 3$, where x is the week of training and y is the distance in miles.

- Predict the distance in week 10. (1 pt)
- In which week does the model predict a 21-mile run? (1 pt)
- Would the model be reasonable for week 60? Explain. (1 pt)

4 Breakfast and lateness

/ 4 pts

One hundred fifty students were asked whether they eat breakfast and whether they were late to first class.

	Late	On time	Total
Eats breakfast	9	81	?
Skips breakfast	18	42	?
Total	?	?	?

- Complete the totals. (1 pt)
- Find the percent late among breakfast eaters and among students who skip breakfast. (1.5 pts)
- Is there an association? Explain. (1.5 pts)

5 True or false?

/ 3 pts

Say whether each statement is true or false, and justify.

- A line of best fit must pass through the origin. (1 pt)
- A strong association proves that one variable causes the other. (1 pt)
- An outlier can change the position of a line of best fit. (1 pt)

6 Residual check

/ 2 pts

A line $y = 2x + 1$ models the first six points of a data set. The seventh point is $(7, 5)$.

- What does the line predict for $x = 7$, and how far off is the actual point? (1 pt)
- What would happen to the line if this point were included? (1 pt)



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