

Line of Best Fit

Draw a reasonable line through scattered data.

GRADE 8 • MA.8.DP.1.3

MA.8.DP.1.3 "Given a scatter plot with a linear association, informally fit a straight line."

NAME _____

DATE _____

FIND THE MIDDLE TREND

Use a ruler to draw one straight line through the middle of a roughly linear pattern. Aim for about as many points above as below, with small vertical gaps overall. The line need not touch any data point. More than one line can be reasonable. Read predictions from your own line; they are estimates, not exact outcomes.

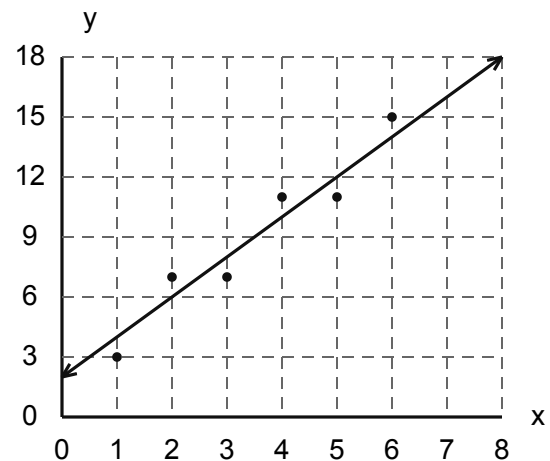
WORKED EXAMPLE

A scatter plot is shown with one reasonable fitted line.

Explain why the line fits the pattern.

1. The line runs through the middle of the rising pattern.
2. Three points are above the line and three are below.
3. It need not connect the first and last data points.

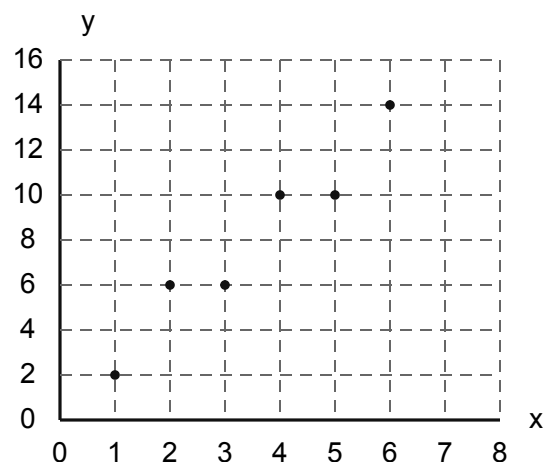
Answer: One reasonable fit is $y = 2x + 2$. Its vertical gaps are 1 unit; other nearby fits may also be reasonable.



PRACTICE 4 problems

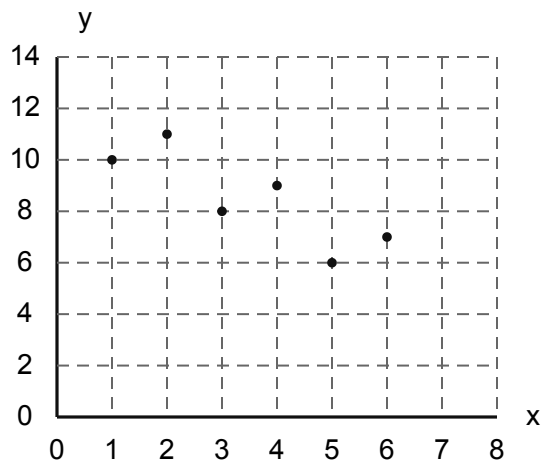
- 1 Draw a fitted straight line with a ruler. Count points above and below your line and explain why your fit is reasonable.

ANSWER _____



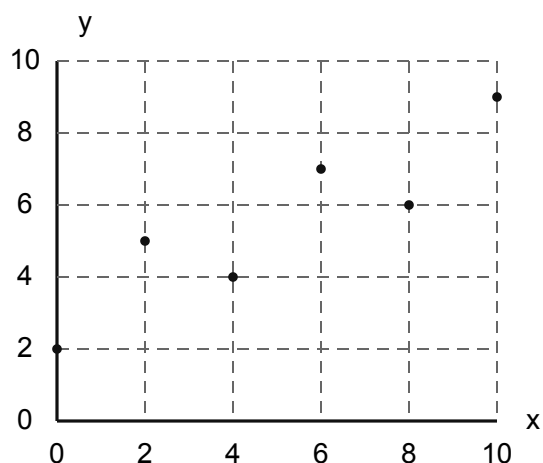
- 2** Draw a fitted straight line with a ruler. Count points above and below your line and explain why your fit is reasonable.

ANSWER _____



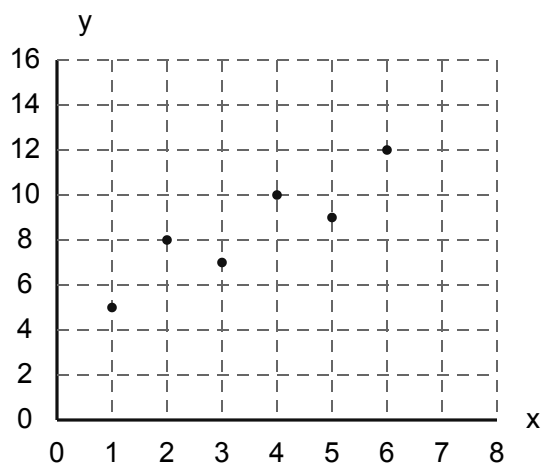
- 3** Draw a fitted straight line with a ruler. Count points above and below your line and explain why your fit is reasonable.

ANSWER _____



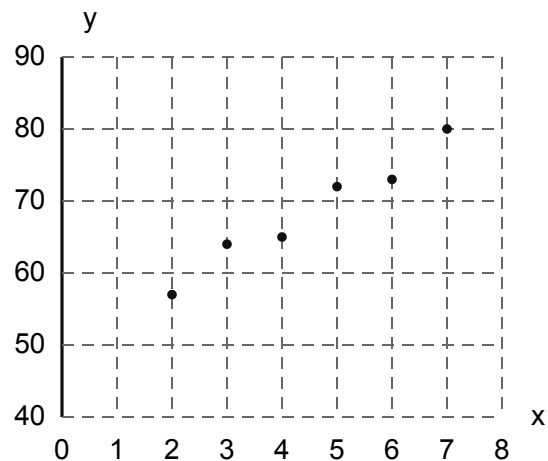
- 4** Draw a fitted straight line with a ruler. Count points above and below your line and explain why your fit is reasonable.

ANSWER _____

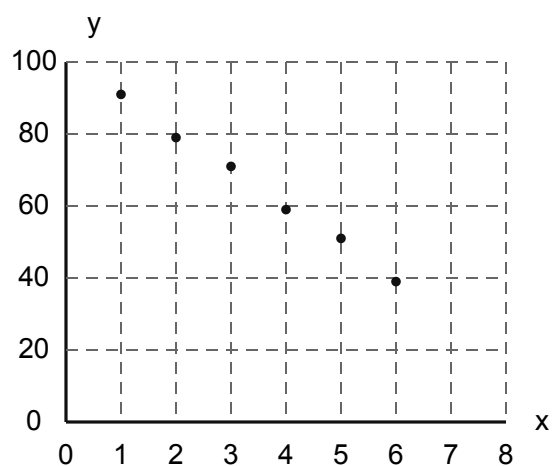


APPLY IT Show your work

- 1** The plot shows game-practice hours x and skill score y . Draw a reasonable fitted line, then predict the score for 5.5 hours. Explain why this is only an estimate.



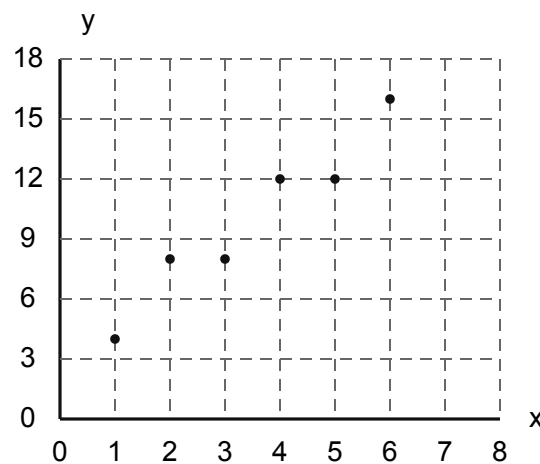
- 2** The plot shows hours of play x and controller battery percentage y . Draw a reasonable fitted line. Estimate battery level after 4.5 hours.



CHALLENGE One step up

A student claims that every fitted line **MUST** pass through the first and last data points. Draw a reasonable fit for this plot. Explain whether that rule is necessary.

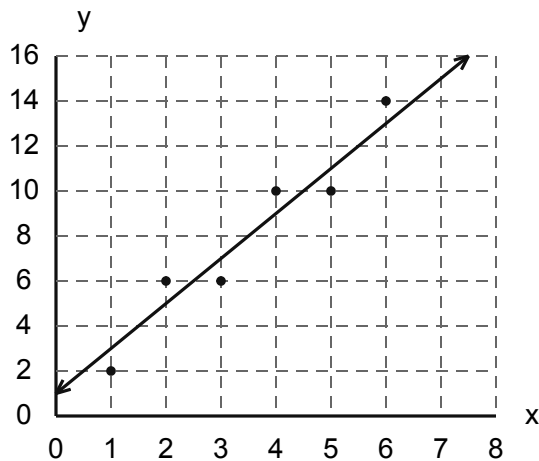
WORK SPACE AND ANSWER



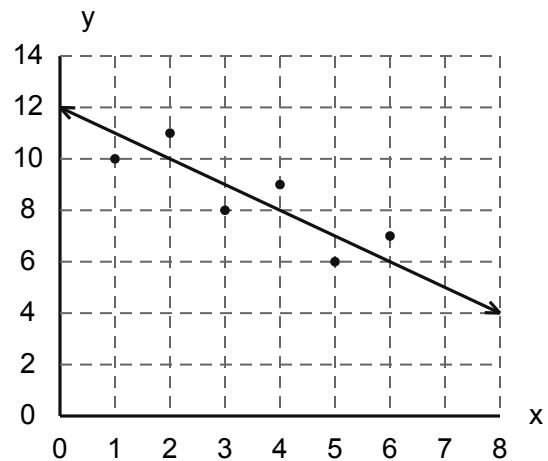
The plotted key lines are examples, not unique answers. Students need not calculate an equation: use their drawn lines and explanation. Accept other straight lines that follow the middle trend and roughly balance counts and distances. Prediction ranges are typical guidance, not hard cutoffs; evaluate the fit that produced the estimate. Never mark a defensible alternative wrong solely for differing from the sample.

PRACTICE 1

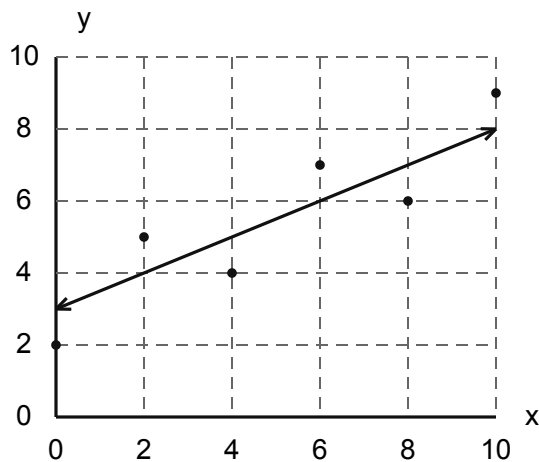
A line near $y = 2x + 1$ is reasonable; three points above and three below.

**PRACTICE 2**

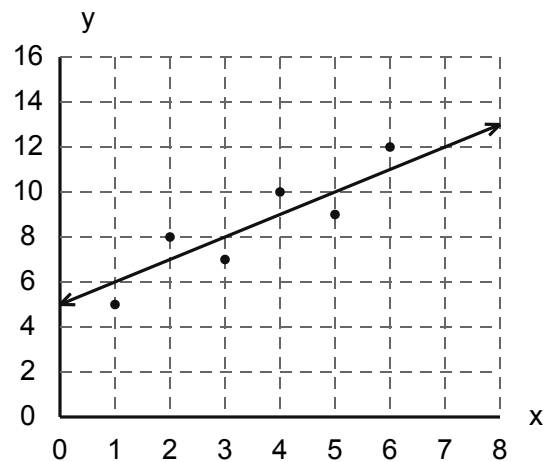
A line near $y = -x + 12$ is reasonable; three points above and three below.

**PRACTICE 3**

A line near $y = x/2 + 3$ is reasonable; three points above and three below.

**PRACTICE 4**

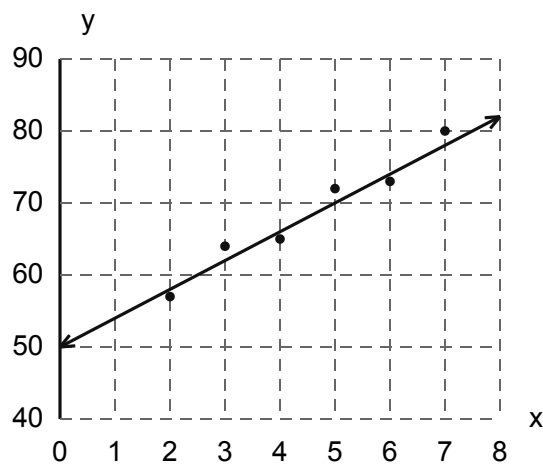
A line near $y = x + 5$ is reasonable; three points above and three below.



APPLY IT 1

A sample fit is $y = 4x + 50$, predicting about 72 points. Reasonable nearby fits may give about 69–75.

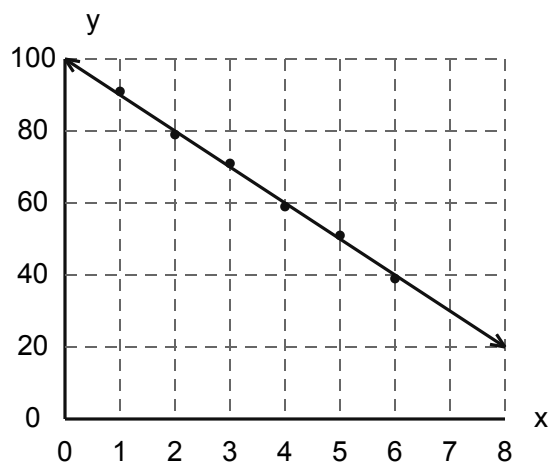
Read the estimate from the drawn line.



APPLY IT 2

A sample fit is $y = -10x + 100$, predicting about 55%. Reasonable nearby fits may give about 52–58%.

Judge the prediction using the drawn trend.



CHALLENGE

No. A fit should summarize the overall pattern. For example, $y = 2x + 3$ balances three points above and three below without joining the first and last points.

