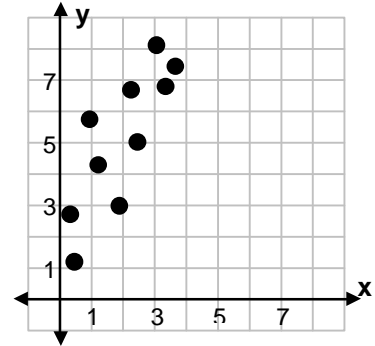
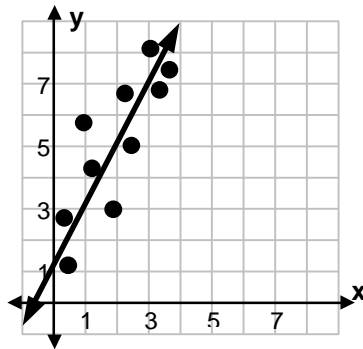


Section 5.4 Fitting Data to a Line

Fitting a best fit line for a set of data is fairly simple but non-exact process. The best fit line should represent as much as that data as possible. There should be roughly the same number of points on each side of the line. The best fit line does not necessarily go through any of the points.

Example 1: Draw the best fit line and then find the equation of that line.

1. Draw the line. It is best to use a clear ruler so you can see the points on both sides of the line.



2. Pick two points from the line you drew. They do not have to be points from the data but should instead be points that you can see where they are on the grid. (1,3) and (3,7)
3. Use the points you choose to find the slope and then the y-intercept.

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{4}{2} = 2$$

$$\begin{aligned} \text{y-intercept} \quad y &= mx + b \\ 3 &= 2(1) + b \\ b &= 1 \end{aligned}$$

4. Write the equation: **$y = 2x + 1$**

The results of this type of problem do not always end up being nice whole number answers. You should look at your result compared to the graph and see if it makes sense. Does the y-intercept match the data? Does the slope have the correct sign? Does the slope have the right slope?

Positive, Negative, and No Correlation

A positive correlation is when the best fit line has a positive slope.

A negative correlation is when the best fit line has a negative slope.

No correlation is when the data is so scattered that you can't tell where the best fit line should be.