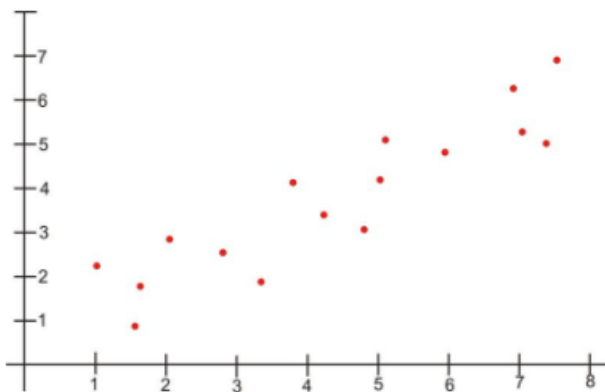


Lines of Best Fit

Lines of best fit are used to express a RELATIONSHIP between different variables in a SCATTER PLOT.

To create lines of best fit, you need to APPROXIMATE where data points are to create a LINEAR equation that closely resembles the relationship between the different variables.

Let's practice a couple examples of this!



Credit: ck12.org

Let's first identify 2 points that LOOK to be at whole-number intersections. We can pick (5, 4) and (7, 5).

Let's find the slope first!

$$\text{Slope} = \frac{5-4}{7-5} = \frac{1}{2}$$

Now that we know the slope, plug $\frac{1}{2}$ for m into slope-intercept form ($y = mx + b$)!

$$y = \frac{1}{2}x + b$$

Plug in one of the points (let's do (5, 4)) to solve for the line!

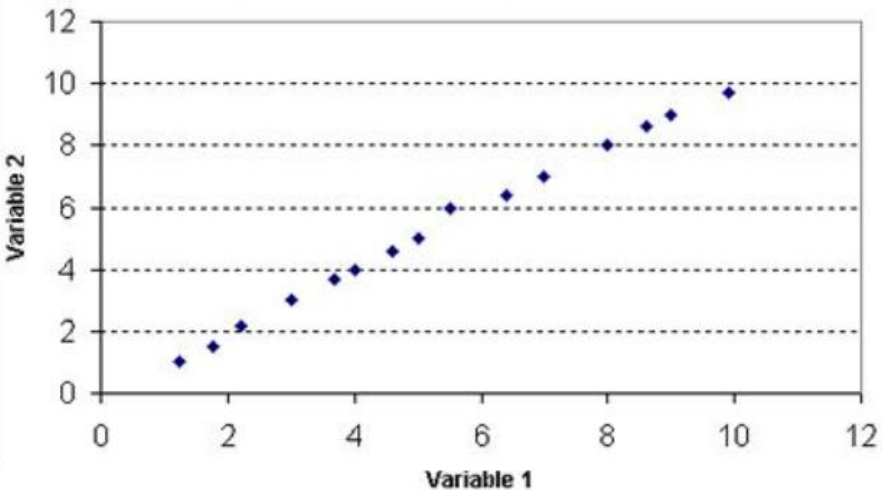
$$4 = \frac{1}{2} (5) + b$$

$$4 = \frac{5}{2} + b$$

$$b = \frac{3}{2}$$

$$y = \frac{1}{2} x + \frac{3}{2}$$

Figure 2. Strong linear relationship of variables



Credit: Pinterest

Use (4, 4) and (8, 8) for the 2 points –
Since the slope is $1(8-4 / 8-4)$ and the x
and y coordinates for both points are
equal (no b), the equation is:

$$y = x$$

Tips for Solving Problems:

1. Remember that your line of best fit is an APPROXIMATION, so it is not going to go through all of the points in the scatter plot. Typically good lines of best fit have half of the data points above them and half below it, though it might not always be easy to make that happen.

2. If you need more review on creating linear functions and finding slope, please make sure to check out those lessons! You definitely need to know these concepts before doing lines of best fit.

3. Use the general direction of the correlation (positive or negative) and the y-coordinates of the points in the scatter plot to see if your line of best fit makes sense (it might not be 100% perfect, but it should make sense based on the scatter plot).