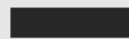
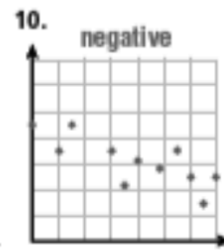
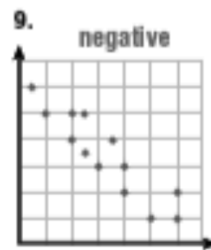
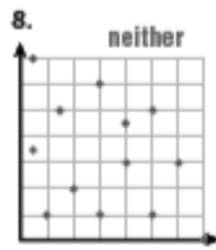
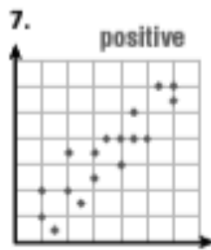


Line of Best Fit

Usually in data collection, there is no single line that passes through all of the data points, so you try to find the line that best fits the data - called the line of best fit. It may pass through some of the points, none of the points, or all of the points.

**It is possible that someone else could choose a different line or set of points and their equation will be entirely different. Your answer is considered correct as long as your calculations are correct for the two points you chose.

Tell whether a line of best fit for each scatter plot would have a positive or negative slope. If a line of best fit would not be appropriate for the data, write *neither*.



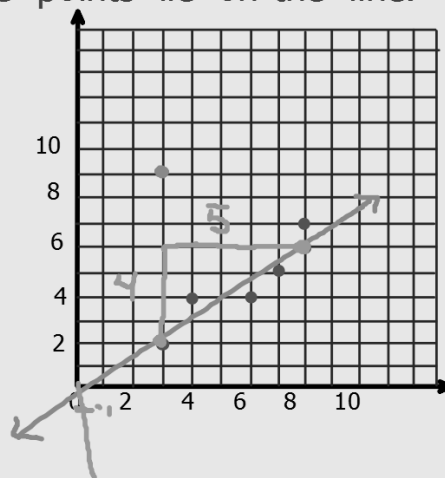
To draw a line of best fit and write the linear equation:

1. Draw the line through as many points as you can.
2. Try to get an equal number of points above the line as below.
3. Ignore any outliers.
4. Try to find 2 points on this line and use these to find the linear equation.
5. It may happen that none of the points lie on the line.

The slope of the line is positive
(positive, negative, or none)
What is the slope? $\frac{4}{5}$.

The y-intercept is approximately 0.

The equation: $y = mx + b$
 $y = \frac{4}{5}x$



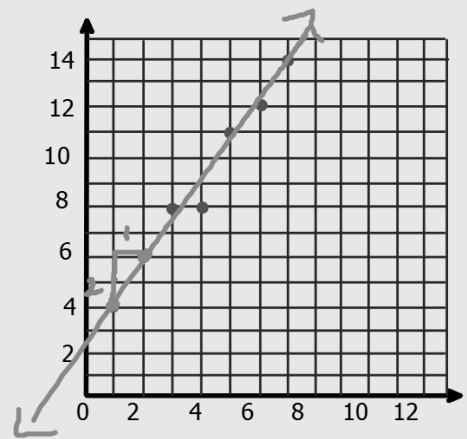
Find the line of best fit.

The slope of the line is positive
(positive, negative, or none)
What is the slope? 2.

The y-intercept is approximately $\frac{5}{2}$.

The equation:

$$y = mx + b$$
$$y = 2x + \frac{5}{2}$$
$$2\frac{1}{2}$$



Finding a Line of Best Fit

Plot the data and find a line of best fit.

x	2	4	5	1	3	8	6	7
y	4	3	6	2	5	8	7	5

$(2, 4)$ $(4, 3)$

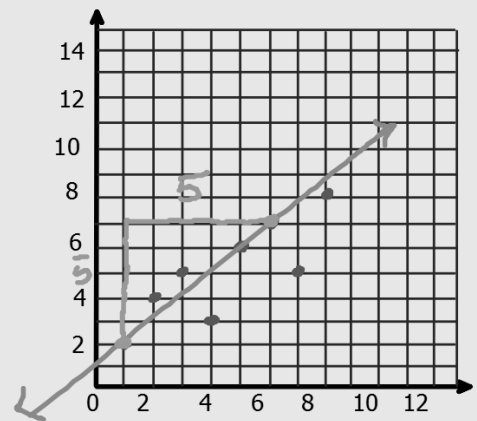
The slope of the line is positive
(positive, negative, or none)

What is the slope? $\frac{5}{5} = 1$.

The y-intercept is approximately 1.

The equation:

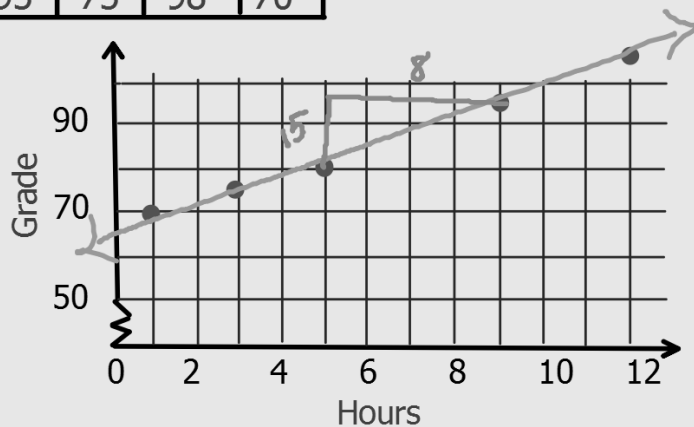
$$y = mx + b$$
$$y = 1x + 1$$



Let's look at the scatterplots we have graphed and determine what the line of best fit is.

Hours Studied	5	9	3	12	1
Exam Grade	80	95	75	98	70

Use the data to predict the exam grade for a student who studies 10 hours per week.



The slope of the line is _____.
(positive, negative, or none)

What is the slope? $\frac{15}{8}$.

The y-intercept is approximately 65.

The equation: $y = \frac{15}{8}x + 65$