

Lesson 12.3 - Line of Best Fit

A line of best fit is drawn on a scatterplot to give the best representation of the correlation between the two variables.

Drawing a line of best fit by hand...

1. Make sure that the points look as balanced as possible on both sides of the line.
2. The line should go directly through the mean point.

Finding the mean point...

x-coordinate = the mean of the x-values

y-coordinate = the mean of the y-values

Example #1

Find the mean point of the data set.

<i>x</i>	2	3	3	5	5	7	2	3	4	6	5	5	4	6	5
<i>y</i>	11	14	15	16	16	19	13	10	13	18	19	12	18	17	11

x = IB Math Studies grade

y = # of hours per week that a student spends listening to music

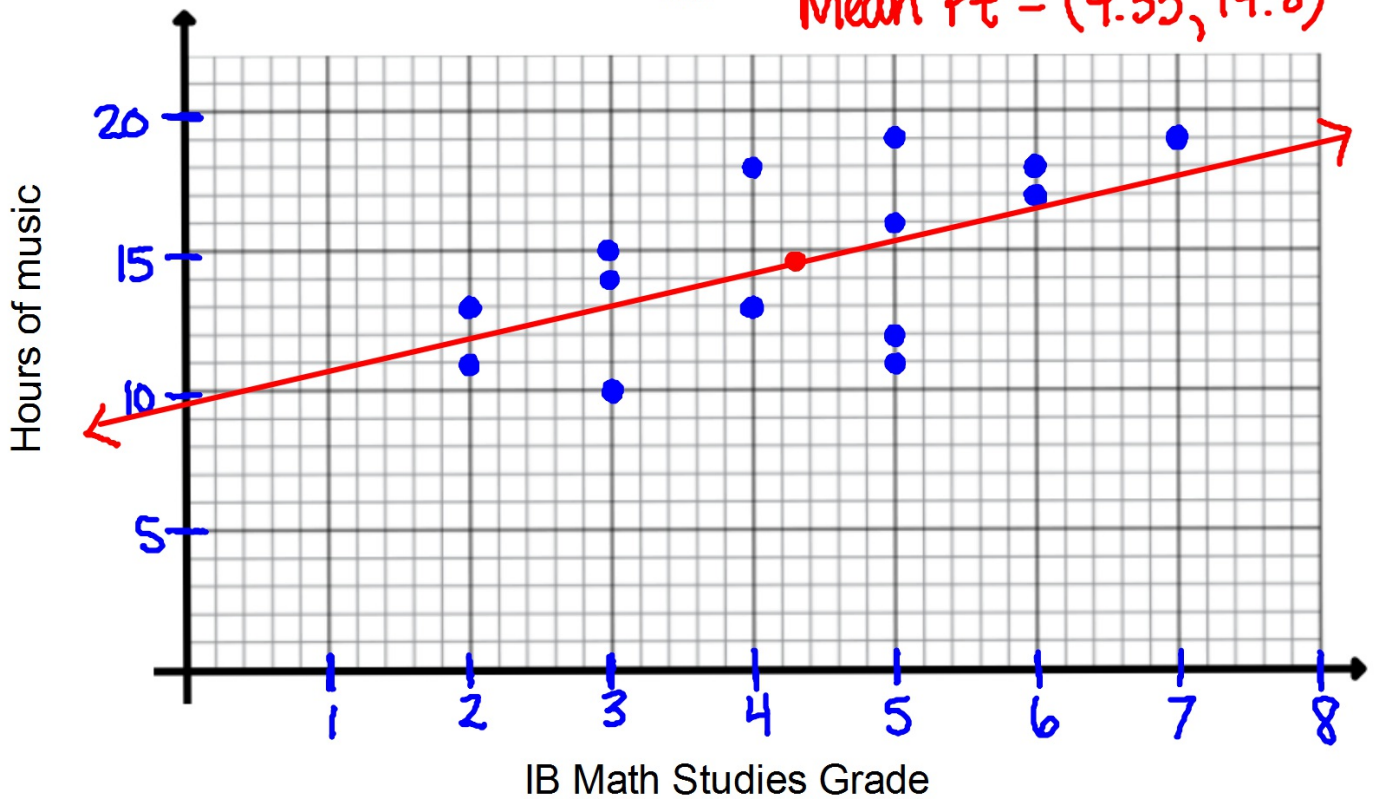
$$\bar{x} = \frac{65}{15} = 4.33, \quad \bar{y} = \frac{222}{15} = 14.8$$

$$\text{Mean Pt} = (4.33, 14.8)$$

Example #2

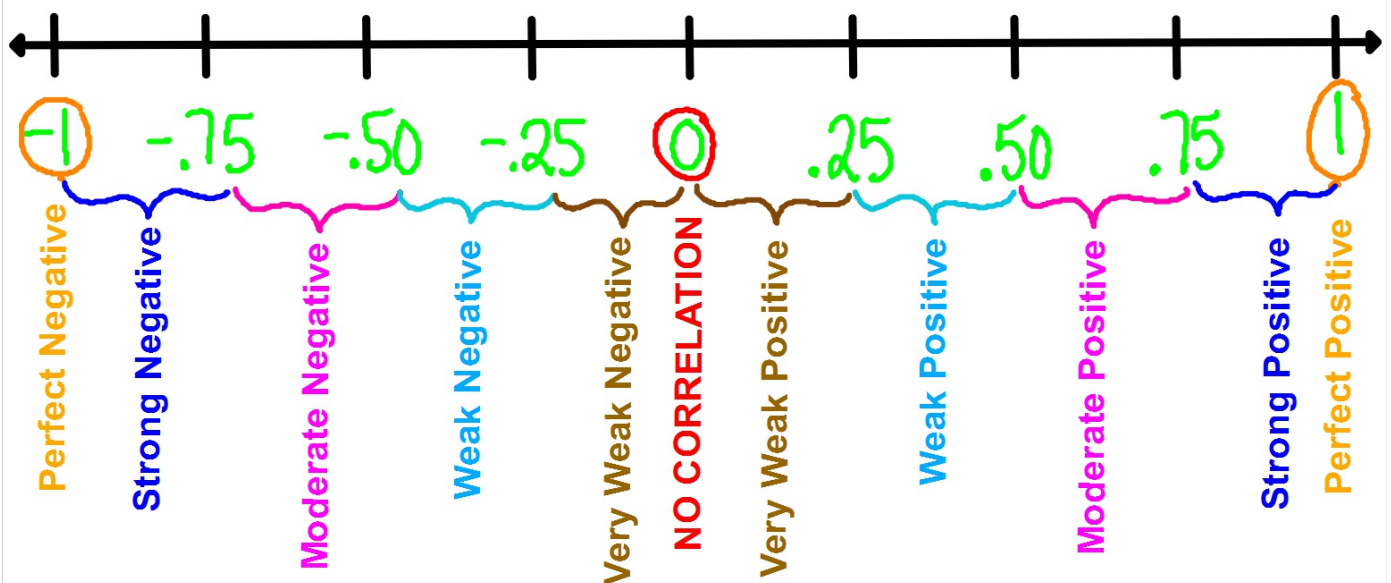
Plot the points from Example #1 & draw the line of best fit.

Mean Pt = $(4.33, 14.8)$



Lesson 12.4 - Pearson's correlation coefficient (r)

A number (usually denoted by r) that goes from -1 to 1. The sign tells the type of correlation and the size tells the strength.



Finding Pearson's Correlation Coefficient using the GDC.

1. Press STAT, EDIT.
2. Type the x-values in L1 and y-values in L2.
3. Press STAT, go over to TEST.
4. SELECT LinRegTTest. Scroll down to see the r -value.

EXAMPLE #1

Calculate the correlation coefficient (r) for the following data set and state the type of relationship of the data set.

Distance, x (km)	4	8	5	10	6
Time, y (minutes)	15	35	12	40	24

$r = .957$
 \Rightarrow Strong Pos