

## 5.6: Fit a Line to Data

**Goals:** \*Decide if a set of data has a positive correlation, negative correlation or relatively no correlation  
\*Write an equation of a line to model non-linear data if possible

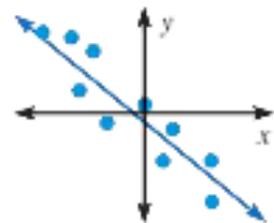
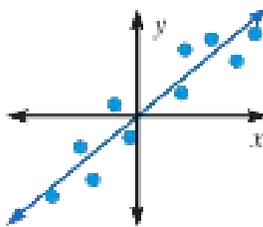
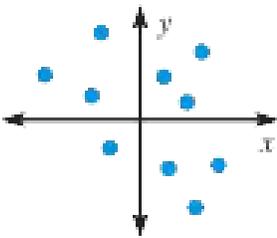
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**Positive correlation:**

**Negative correlation:**

**Relatively no correlation:**

**Ex:** State the type of correlation the graphs below display:

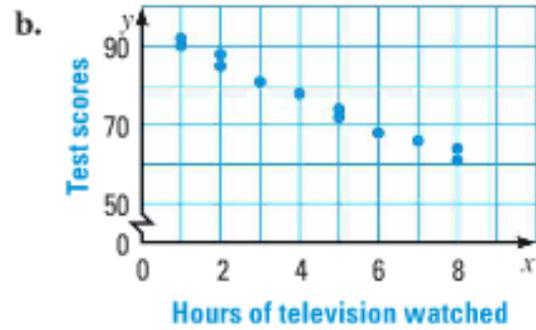
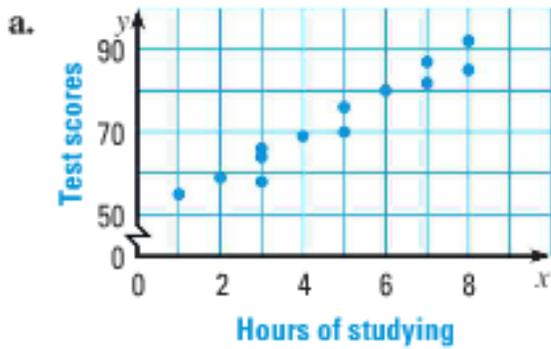


**Ex:** Describe a situation you would consider to represent a positive correlation

**Ex:** Describe a situation you would consider to represent a negative correlation

**Ex:** Describe a situation you would consider to have relatively no correlation

**Ex:** Describe the correlation of the data graphed in the scatter plot

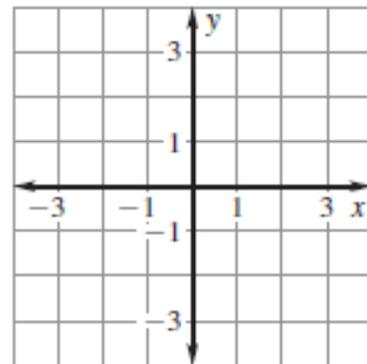


**Ex:** Using the scatter plots above, predict a reasonable test score for 4.5 hours of studying and 4.5 hours of television watched.

**Make a scatter plot of the data then draw a line of best fit. Be sure to state which points you are using for your line, then write the equation of your line in slope-intercept form.**

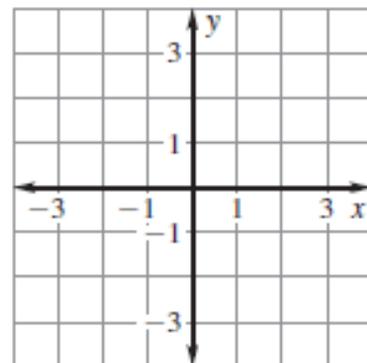
**Ex:**

<b>x</b>	-2	-1	-1	0	1	2
<b>y</b>	2	1	0	-1	-2	-3



**Ex:**

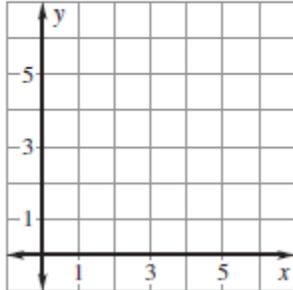
<b>x</b>	-5	-4	-3	-2	-1	0
<b>y</b>	1	0	1	3	2	4



Make a scatter plot of the data. *Describe* the correlation of the data. If possible, fit a line to the data and write the equation of the line.

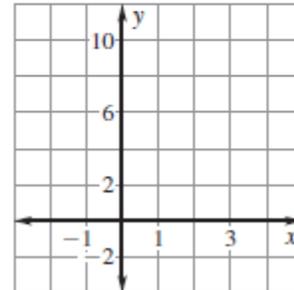
Ex:

<b>x</b>	4.8	5	5.4	5.8	6.1	6.3	6.5
<b>y</b>	1	2	1	3	4	6	5



Ex:

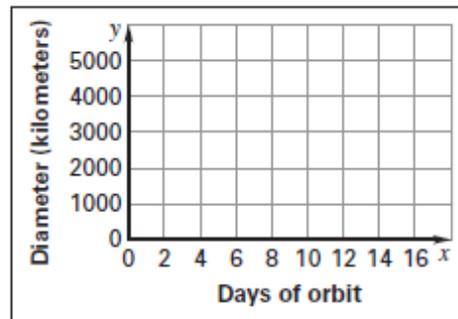
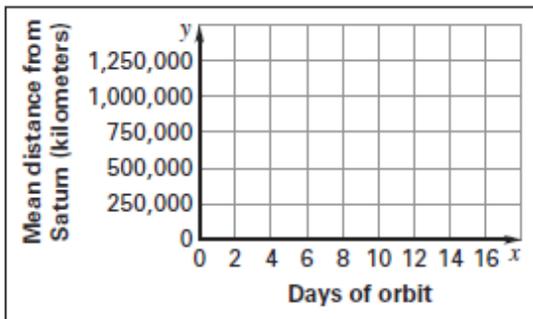
<b>x</b>	3	2	2	2	1	1	0
<b>y</b>	9	8	6	3	4	2	0



**Ex: Saturn's Moons** The table shows a moon's mean distance from the Saturn, the moon's diameter, and the number of days it takes the moon to orbit Saturn.

<b>Moon</b>	Mimas	Janus	Tethys	Prometheus	Titan
<b>Mean distance (km)</b>	185,520	151,470	294,660	139,350	1,221,830
<b>Days of orbit</b>	0.94	0.6945	1.88	0.6139	15.94
<b>Diameter (km)</b>	392	178	1060	92	5150

- a. Make a scatter plot where  $x$  is the number of days of orbit and  $y$  is the mean distance from Saturn. Make another scatter plot where  $x$  is the number of days of orbit and  $y$  is the diameter of the moon.



- b. Draw conclusions about the data.