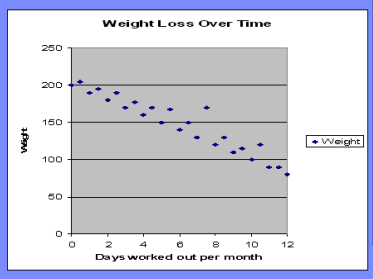
Scatter plots

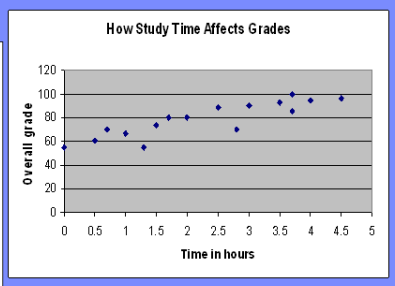
1) Students graph scatter plots

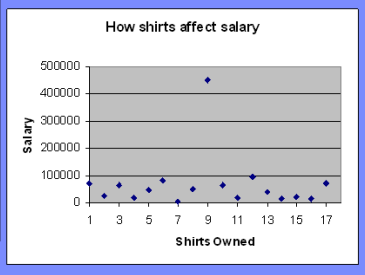
2) Students predict correlation of linear regression through word problems, graphs, and calculator

Lesson objectives | Teachers' notes

1-5 Scatter Plots







- Scatter plots are similar to line graphs in that each graph uses the horizontal (x) axis and vertical (y) axis to plot data points.
- Scatter plots are most often used to show correlations or relationships among data.

1-5 Scatter Plots

Vocabulary Words:

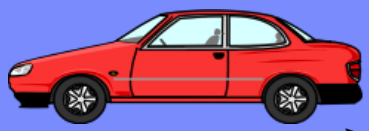
- scatter plot- *shows relationships between two sets of data*
- correlation - *the relationship between two variables*
- line of best fit (trend line) - *is a line that best represents the data on a scatter plot*
- positive correlation - *the data displayed on the graph resembles a line rising from left to right*
- negative correlation - *the data displayed on the graph resembles a line falling from left to right*
- no correlation - *the data displayed on the graph neither resembles a line rising nor falling from left to right*

1-5 Scatter Plots

A Correlation can be Predicted without Having to Observe the Data in a Table or Graph.

Given the examples, what is the correlation? (positive, negative, or no correlation)

Pick a Picture



Test Yourself

1-5 Scatter Plots

- Your grade point average and the number of A's you receive.

Positive Negative None

- Time spent studying and the grade on your test.

Positive Negative None

1-5 Scatter Plots

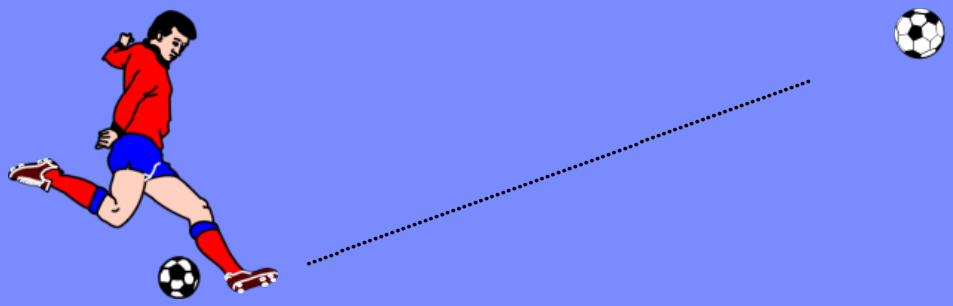
- The size of a person and the number of fingers he has

Positive Negative None

1-5 Scatter Plots

- The weight and height of each member of a soccer team.

Positive Negative None



1-5 Scatter Plots

- The size of a car or truck and the number of miles per gallon of gasoline it can travel.

Positive Negative None

1-5 Scatter Plots

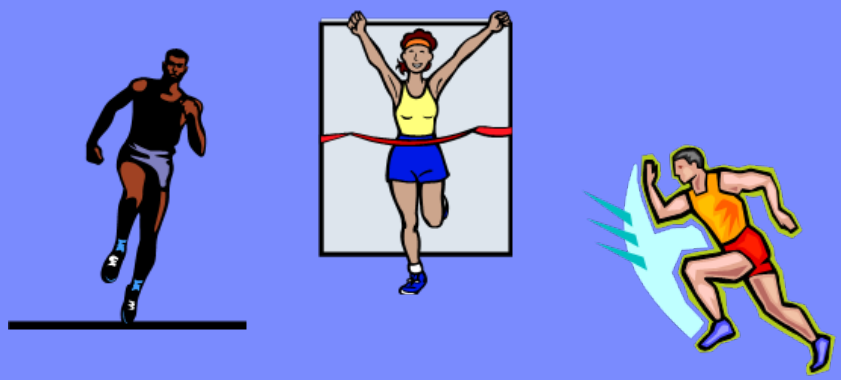
. The number of telephones using the same cell phone number and the number of calls you receive.

Positive Negative None

1-5 Scatter Plots

. The speed of a runner and the number of races he/she wins.

Positive Negative None



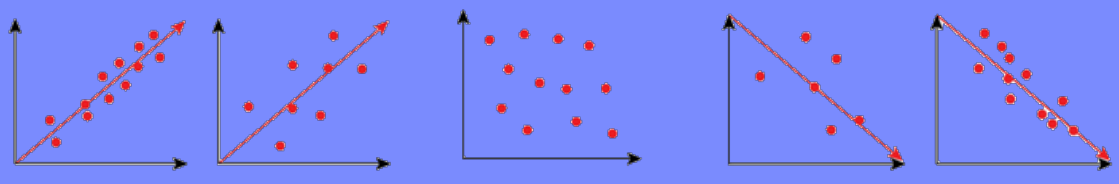
1-5 Scatter Plots

Test Yourself….write these down & answer
Do the data sets have a positive, negative, or no correlation?

1. The minimum wage and the year
   positive
2. The amount of precipitation and the day of the week
   no correlation
3. The amount of germs on your hands and the number of times you wash your hands in a day
   negative

1-5 Scatter Plots

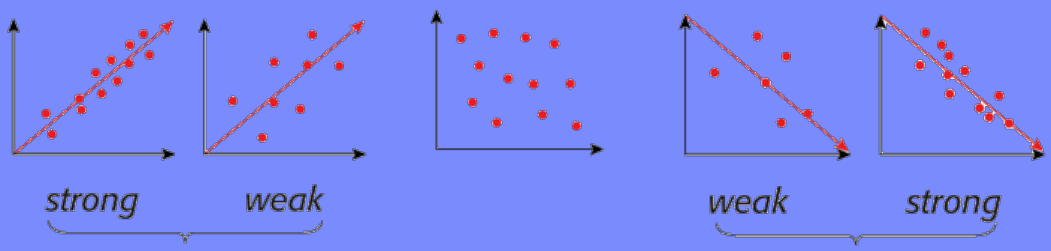
Correlation can also be shown in scatter plot using graphs for visual reference.



A trend line can be shown which is the line of best fit through the data points.

1-5 Scatter Plots

Correlation - as one data set increases, the other decreases.



Positive correlation; both data sets increase together.

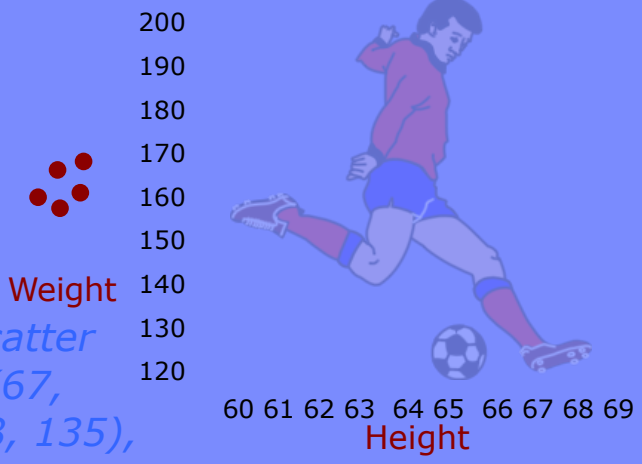
No correlation; as one data set increases, the other decreases.

Negative correlation; as one data set increases, the other decreases.

1-5 Scatter Plots

Use the given data to make a scatter plot of the weight and height of each member of a soccer team.

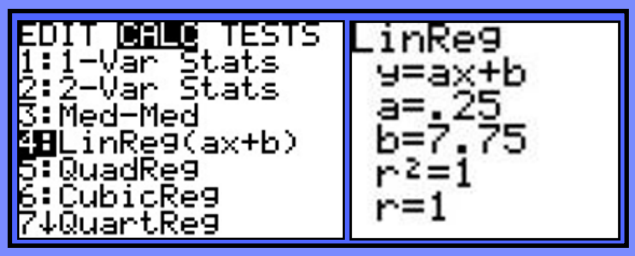
Height (in)	Weight (lbs)
63	125
67	156
69	175
68	135
62	120



The points on the scatter plot are (63, 125), (67, 156), (69, 175), (68, 135), and (62, 120).

1-5 Scatter Plots

Correlation can also be shown in a calculator as a linear regression.

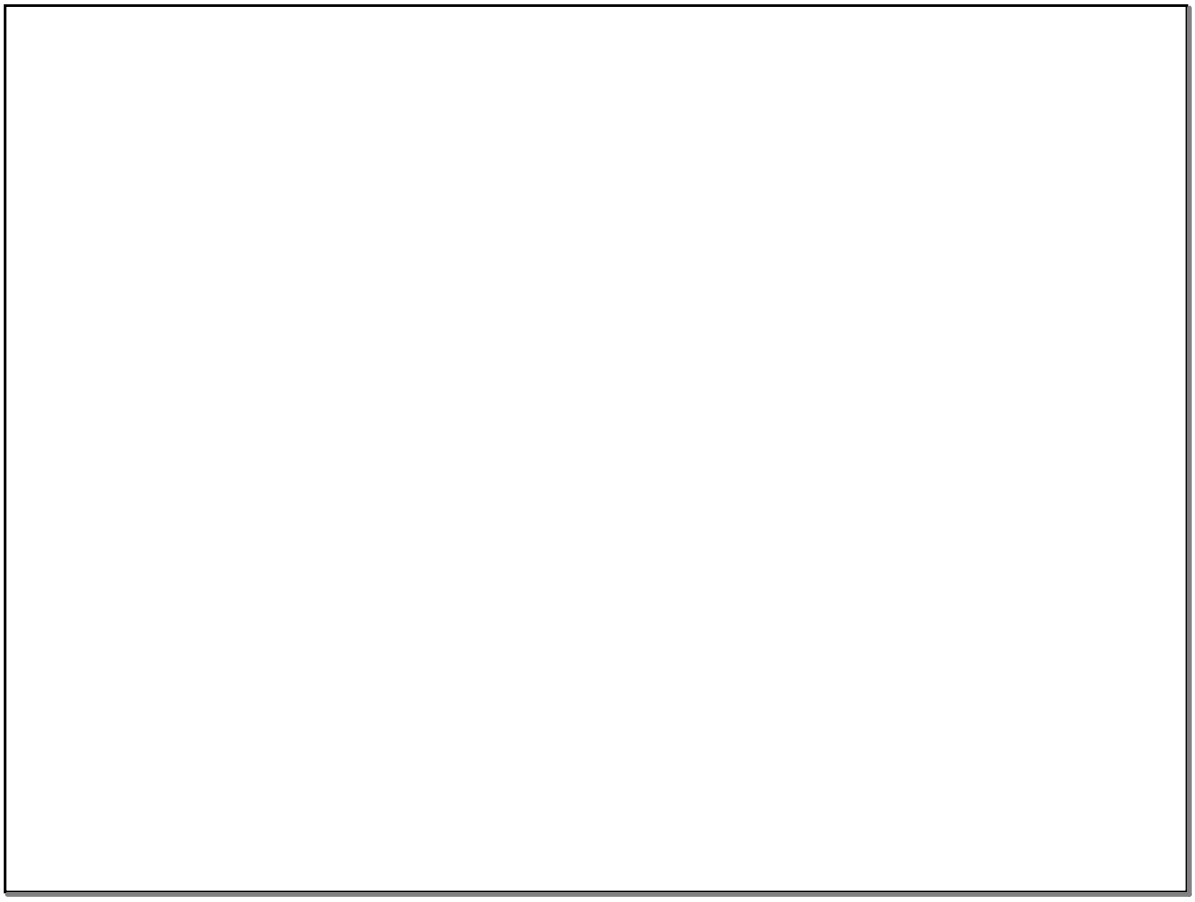


Looking at the "r" value, you can determine how close a correlation of the scatter plot.

- r is the correlation coefficient
- r^2 is the coefficient of determination

1-5 Scatter Plots

Correlation Coefficient - Relationship Between X & Y

"r" Value Interpretation

r = + 1.0	Strong - Positive	As X goes up, Y always also goes up
r = + 0.5	Weak - Positive	As X goes up, Y tends to usually also go up
r = 0	- No Correlation -	X and Y are not correlated
r = - 0.5	Weak - Negative	As X goes up, Y tends to usually go down
r = - 1.0	Strong - Negative	As X goes up, Y always goes down