Scatter Plots and Line of Best Fit

Graph each point on the same coordinate plane.

1. *A* (5, 20)

2. *B* (20, 15)

3. *C* (10, 40)

4. *D* (30, 35)
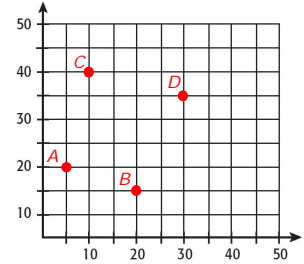
*Learn* to create and interpret scatter plots.

Vocabulary

scatter plot
correlation
line of best fit

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A **scatter plot** shows relationships between two sets of data.

Additional Example 1: Making a Scatter Plot of a Data Set

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

| Height (in.)	Weight (lb)
71	170
68	160
70	175
73	180
74	190
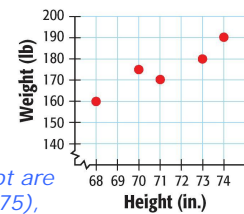
The points on the scatter plot are (71, 170), (68, 160), (70, 175), (73, 180), and (74, 190).

Try This: Example 1

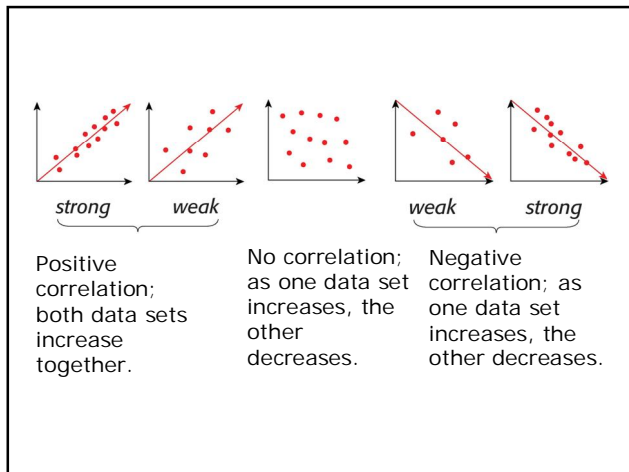**Use the given data to make a scatter plot of the weight and height of each member of a soccer team.**

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).

strong   *weak*   *weak*   *strong*
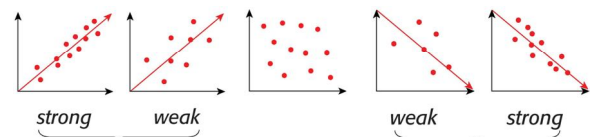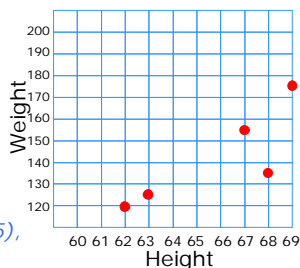
Correlation describes the type of relationship between two data sets. The **line of best fit** is the line that comes closest to all the points on a scatter plot. One way to estimate the line of best fit is to lay a ruler's edge over the graph and adjust it until it looks closest to all the points.

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.

Additional Example 2A: Identifying the Correlation of Data

Do the data sets have a positive, a negative, or no correlation?.

A. The size of a jar of baby food and the number of jars of baby food a baby will eat.

Negative correlation: The more food in each jar, the fewer number of jars of baby food a baby will eat.

Additional Example 2B: Identifying the Correlation of Data

Do the data sets have a positive, a negative, or no correlation?.

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

Positive correlation: The faster the runner, the more races she will win.

Additional Example 2C: Identifying the Correlation of Data

Do the data sets have a positive, a negative, or no correlation?.

C. The size of a person and the number of fingers he has

No correlation: A person generally has ten fingers regardless of their size.

Do the data sets have a positive, a negative, or no correlation?.

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

Negative correlation: The larger the car or truck, the fewer miles per gallon of gasoline it can travel.

Do the data sets have a positive, a negative, or no correlation?.

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

Positive correlation: The more A's you receive, the higher your grade point average.

**Do the data sets have a positive, a negative, or no correlation?.**

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

No correlation: No matter how many telephones you have using the same telephone number, the number of telephone calls received will be the same.

Additional Example 3: Using a Scatter plot to Make Predictions

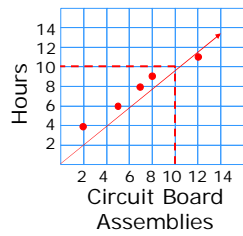**Use the data to predict how much a worker will earn in tips in 10 hours.**

Hours	4	8	3	2	11
Tips ($)	12	20	7	7	26
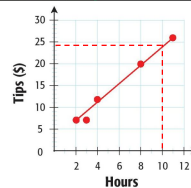
According to the graph, a worker will earn approximately $24 in tips in 10 hours.

Try This: Example 3

Use the data to predict how many circuit boards a worker will assemble in 10 hours.

Hours (y-axis), Circuit Board Assemblies (x-axis)

Hours Worked	4	8	6	9	11
Circuit Board Assemblies	2	7	5	8	12

According to the graph, a worker will assemble approximately 10 circuit boards in 10 hours.