1.7- Exploring Data; Linear Models 7 Scatter Plots

 **What will you learn?** 

- To *construct* scatter plots
- To interpret correlation
- To *use* scatter plots
- To use graphing calculator to find *linear models* for data

Example 1 - Constructing a Scatter Plot

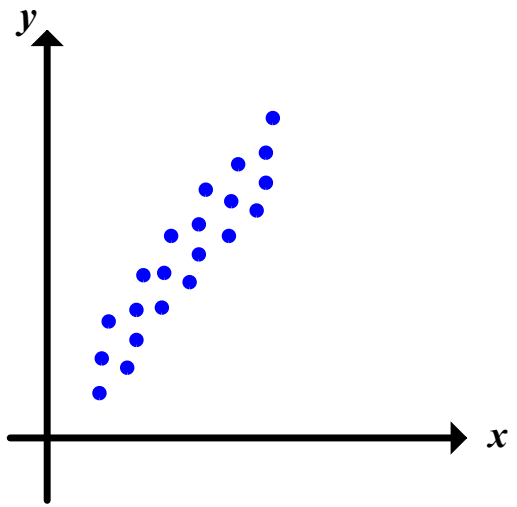
See p. 72

P. 77; exercise 1

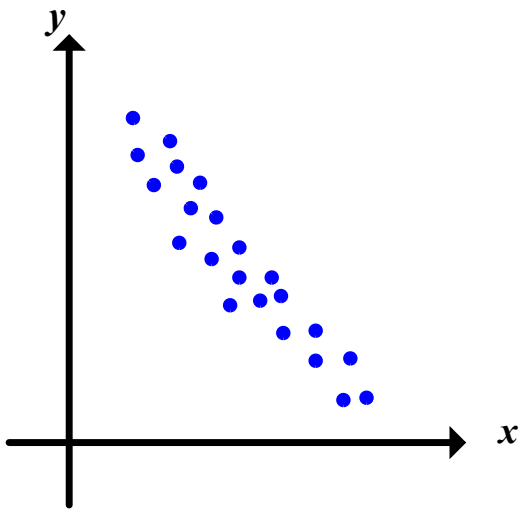
Relationship *may not be exactly linear*

Mathematical Model - looking for "best fit"

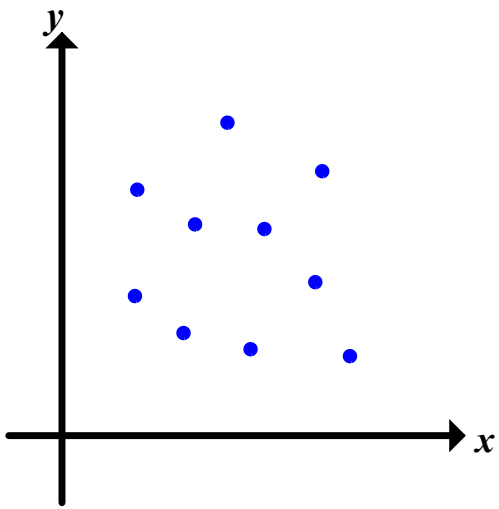
Positive Correlation



Negative Correlation



No Correlation



Example 2 - Interpreting Correlation

See p. 73

Fitting a Line to Data

- Sketch a line that appears to fit the points
- Find two points
- Finsd the equations of the line that passes through the two points

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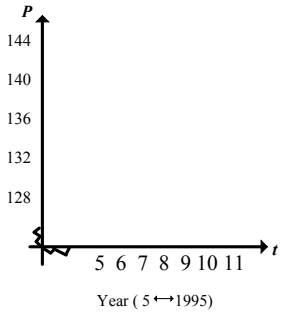
Example 3 - Fitting a Line to Data

Find a linear model that relates the year to the number of people in the U.S. labor force

Year	People, P
1995	132
1996	134
1997	136
1998	138
1999	139
2000	141
2001	142



See p. 77; exercise 11 (*a* and *b)*

Once you have found a model you can test to see how well it fits

Year	P (actual)	P (model)
1995	132	
1996	134	
1997	136	
1998	138	
1999	139	
2000	141	
2001	142	

People (millions)

Sum of the Squared Differences - sum of the squares of the differences between the actual and the model values

Least Squares Regression Line model that has the least sum

Example 4 - A Mathematical Model