

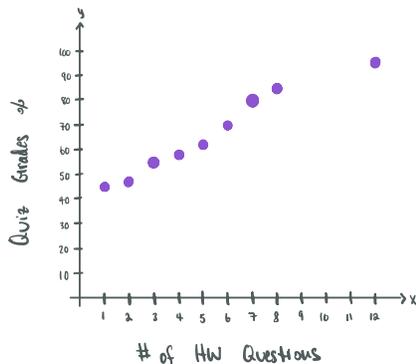
# Bivariate Data

Finding the correlation of 2 variables

Hannah Montana is interested to find out whether the number of homework problems she completes has an effect on her quiz grades throughout the school year. The data she collected is shown below:

# of HW Q's	2	6	5	1	4	8	3	12	7
Quiz Grades(%)	48	70	61	45	58	85	55	96	80

- Ⓐ Find the Independent Variable  
# of HW Questions Hannah completed
- Ⓑ Find the Dependent Variable  
Hannah's Quiz Grades
- Ⓒ Plot this data on a graph



Scatter Plot

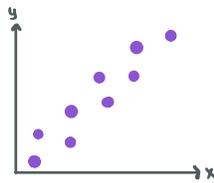
- Ⓓ Are these two variables related?

Yes, as HW goes up so do Quiz Grades

★ Independent Var. is always X-axis  
Dependent Var. is always Y-axis

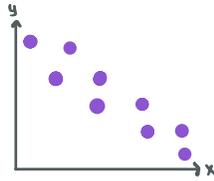
# Correlation - measure of how variables are related

Positive



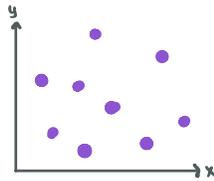
If Ind variable  $\uparrow$ , then Dep. variable  $\uparrow$

Negative



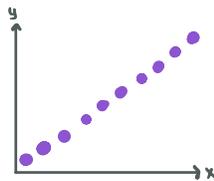
If Ind variable  $\uparrow$ , then Dep. variable  $\downarrow$

No Correlation



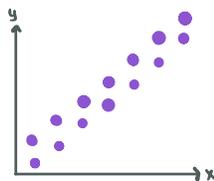
- Ind variable has no relation with Dep. variable
- Plots are Randomly scattered

Strong



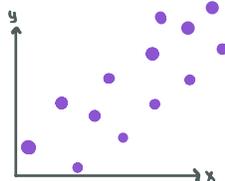
"Strong Positive Correlation"

Moderate



All examples shown have positive correlation but this applies to negative correlation as well

Weak



"Weak Positive Correlation"

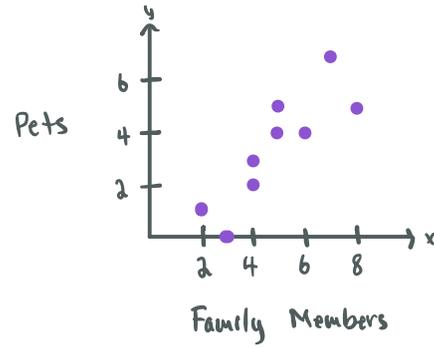
The table below shows the number of members in each of the nine families and the number of pets the family has:

# of Members	2	3	4	4	5	5	6	7	8
# of Pets	1	0	3	2	5	4	4	7	5

(a) Draw a Scatter Plot

(b) Describe the Correlation

Positive Moderate



## Practice Problems

Pg 136 Ex 14-13

137-138 Q.1-5