

**What am I learning today?**

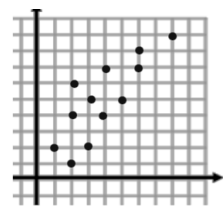
**Main Ideas/  
Questions**  
Scatterplot

**Notes**

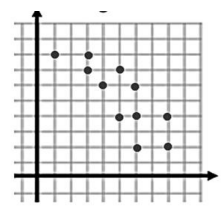
**Correlation** – Measures how well a \_\_\_\_\_ represents a set of data points  
 \*\*\*This can determine if two variables have a \_\_\_\_\_  
 \*\*\*This is denoted by the letter \_\_\_\_\_ (called the **correlation coefficient**)  
 \*\*\*This number can ONLY be between \_\_\_\_\_ and \_\_\_\_\_  
 \*\*\*This is described by \_\_\_\_\_ and \_\_\_\_\_

Direction

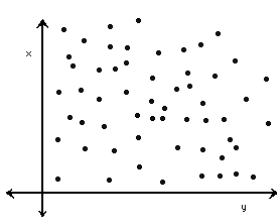
**Positive Correlation** – When the points lie close to a line with a \_\_\_\_\_ slope; the 'r' value is \_\_\_\_\_



**Negative Correlation** – When the points lie close to a line with a \_\_\_\_\_ slope; the 'r' value is \_\_\_\_\_

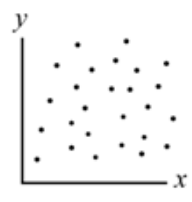


**No Correlation** – When the points do \_\_\_\_\_ lie close to any line; the 'r' value can be \_\_\_\_\_ or \_\_\_\_\_



Examples

**Describe the direction of the correlation of each graph below:**



**Main Ideas/  
Questions**

Strength

**Notes**

**Very Strong Correlation** – When the points lie very close to a line; the 'r' value is  $r \geq \pm 0.8$

**Strong Correlation** – When the points lie very close to a line; the 'r' value is  $\pm 0.6 \leq r < \pm 0.8$  (between)

**Moderate Correlation** – When the points lie close to a line; the 'r' value is  $\pm 0.4 \leq r < \pm 0.6$  (between)

**Weak Correlation** – When the points sort of make a line; the 'r' value is  $\pm 0.2 \leq r < \pm 0.4$  (between)

**No Correlation** – When the points do not make any line; the 'r' value is  $r < 0.2$

Examples

**Examples:** Describe the correlation (direction and strength) by using the correlation coefficient (r).

1.  $r = 0.75$

2.  $r = -0.5$

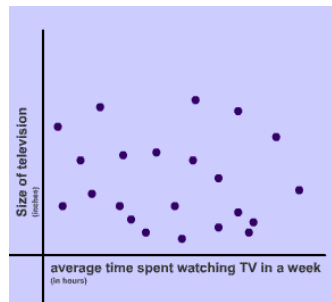
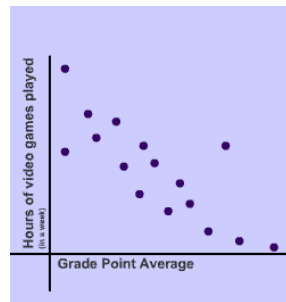
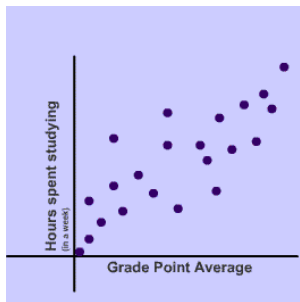
3.  $r = -0.96$

4.  $r = 0.02$

5.  $r = 0.35$

6.  $r = 0.15$

**Examples:** Describe the correlation of the following scatterplots and estimate the correlation coefficient (r).



Characteristics of 'r'

- The closer to 1 or -1 the \_\_\_\_\_ the correlation
- It does \_\_\_\_\_ change when we change \_\_\_\_\_ of measurements
- It does \_\_\_\_\_ change if we \_\_\_\_\_ the explanatory and response variables
- It is \_\_\_\_\_ affected by outliers. When outliers are \_\_\_\_\_, the correlation increases in \_\_\_\_\_