MDM4UI **Unit 1 Quiz 2** **Name: _____**

Constructing and Interpreting Visual Displays of Data **Date: _____**

Answer all questions on the quiz sheet. Full marks will only be awarded for full work – **show all your calculations!**

[1] 1. Two variables have a coefficient of determination of 0.81. The correlation coefficient could be.

a. −0.64
b. 0.41
c. −0.9
d. 0.36

[1] 2. A relationship in which all data values lie on the regression line has a correlation coefficient of

a. 1
b. 0
c. −1
d. +1 or −1

[1] 3. If a set of data has a very strong correlation, the residual values will be

a. very large
b. positive
c. negative
d. very small

[1] 4. Two variables have a strong positive correlation. Which of the following statements is <u>not</u> true?

a. the dependent variable increases as the independent variable increases
b. the trend of the data exhibits an irregular decline
c. the line of best fit has a positive slope
d. most data points lie close to the line of best fit

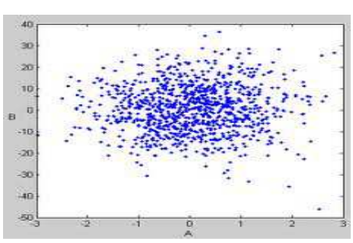
[3] 5. If the line of best fit equation is *v(t)=3.5t-1*, calculate the residual value for the point (-2,-5) and explain what this value represents.

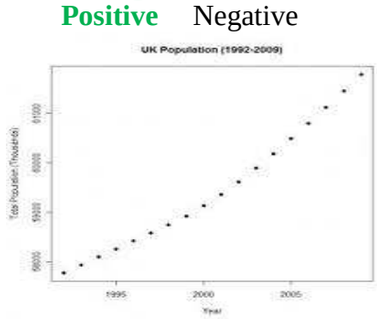
$$\begin{aligned} R &= y-[(3.5\times(x)-1] \\ &= -5-[(3.5\times(-2)-1] \\ &= -5-(-7-1) \\ &= -5-(-8) \\ &= -5+8 \\ &= 3 \end{aligned}$$

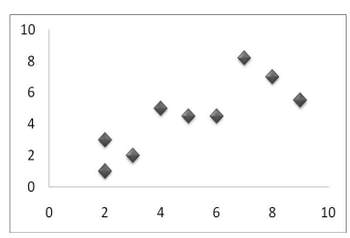
This value represents the distance of the point, (-2,-5), from the line of best fit. In other words, point, (-2,-5) is three units above the line of best fit.

[3] 6. For each of the following graphs, circle whether or not there appears to be a trend (Yes or No), If Yes, then circle whether the correlation is strong or weak, and if it is positive or negative.

a.	Yes	**No**	b.	**Yes**	No	c.	**Yes**	No
	Strong	Weak		**Strong**	Weak		Strong	**Weak**
	Positive	Negative		**Positive**	Negative		**Positive**	Negative







[6] **7.** The numbers of points scored by a basketball team this season are recorded below

45	71	55	62	57	68	62	48	52	60	59
75	51	49	57	56	54	63	55	67	61	58

a. Construct a stem-and-leaf plot to display the data.

b. The basketball team must score more than 68 points to win the championship game. Considering the data above, how likely do you think this will happen? Explain.

<u>Solution:</u>

a)

Stem	Leaves
4	5 8 9
5	1 2 4 5 5 6 7 7 8 9
6	0 1 2 2 3 7 8
7	1 5

b) The team scored more than 68 points in only two games, so

$$\begin{aligned} \frac{2}{22} &\doteq 0.090909 \\ &\doteq 9\% \end{aligned}$$

In only 9% of the games did the team score more than 68 points, Therefore, it is not very likely they will win the championship.