

2. Tessa owns a small clothes shop in a seaside town. She records the weekly sales figures, £ w , and the average weekly temperature, $t^{\circ}\text{C}$, for 8 weeks during the summer.

The product moment correlation coefficient for these data is -0.915

- (a) Stating your hypotheses clearly and using a 5% level of significance, test whether or not the correlation between sales figures and average weekly temperature is negative.

(3)

- (b) Suggest a possible reason for this correlation.

(1)

Tessa suggests that a linear regression model could be used to model these data.

- (c) State, giving a reason, whether or not the correlation coefficient is consistent with Tessa's suggestion.

(1)

- (d) State, giving a reason, which variable would be the explanatory variable.

(1)

Tessa calculated the linear regression equation as $w = 10\,755 - 171t$

- (e) Give an interpretation of the gradient of this regression equation.

(1)