

Year 1 Applied Exam Questions

Chapter 3: Correlation and Regression

Answers

1. (a) $7.35 \Rightarrow m = 35$

$$t = 6.83 + 0.204 \times 35 = \underline{13.973} \quad \text{M1 A1}$$

14.0 AWRT

(b) (i) $9.00 \Rightarrow m = 120$

No; outside range of data (after 7.50 am) B1; B1

(ii) No; No evidence model will apply one month later B1; B1

2. (a) $w = -60.5 + 1.8 \times 60$ M1

$$w = 47.5$$

(b) It is extrapolating so (may be) unreliable. B1 B1dep

3. (a) Every (extra) hour spent using the programme produces about 9.5 marks improvement

B1ft

(b) $y = -10.7 + 9.48 \times 3.3, = 20.6$ awrt 21 M1, A1

(c) Model may not be valid since [8h is] outside the range [0.5 – 4]. B1

4. (a) $l = 2460 + 0.04123(40) = 2461.6492$

(b) $l = 2460 + 0.04123(90) = 2463.7107$

(c) 90°C outside range of data

B1

unlikely to be reliable

B1

5.

For every 1°C the temperature increases, the sunshine increases by 0.25 hours.

6.

a) As the height increases the weight increases. (Positive correlation)

b) For every cm the height increases the weight increases by 1.37 kg.

c)
$$w = 1.37(170) - 173$$
$$= \underline{\underline{59.9 \text{ kg}}}$$

d) It is reliable because 170 cm is within the range of data. (Interpolation)