Year 1 Applied Chapter 4 – Exam Questions Correlation (Answers)

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

$\therefore t = 6.8\dot{3} + 0.204 \times 35 = \underline{13.97\dot{3}}$ M1 A1 2

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 4

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

$= 47.5$

(b) It is extrapolating so (may be) unreliable. B1 B1dep 2

Note

'Outside the range on the table' or equivalent
award first B1

3. (a) Every (extra) hour spent using the programme produces about 9.5 marks improvement B1ft 1

Note

B1ft for comment conveying the idea of *b* marks per hour. Must mention value of *b* but can ft their value of *b*. No need to mention "extra" but must mention "marks" and "hour(s)" e.g. "…9.5 times per hour …" scores B0

(b) $y = -10.7 + 9.48 \times 3.3, = 20.6$ awrt 21 M1, A1 2

(c) Model may not be valid since [8h is] outside the range [0.5 – 4]. B1 1

Note

B1 for a statement that says or implies that it may not be valid because outside the range.
They do not have to mention the values concerned here namely 8 h or 0.5 – 4

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