

b) The standard deviation for the first week in May 2015 was equal (to 3 s.f.) to the first SEVEN days in May 1987. Find the mean temperature for May 7th 1987. Give your answer to the nearest 0.05°C

s.d.
May 2015
= 2.44

s.d.
May 1987

$$= \sqrt{\frac{\sum x^2}{n} - m^2}$$

$$= \sqrt{\frac{8.7^2 + 4.8^2 + 6.5^2 + 9.3^2 + 11.6^2 + 10.8^2 + t^2}{7} - \left(\frac{8.7 + 4.8 + 6.5 + 9.3 + 11.6 + 10.8 + t}{7}\right)^2}$$

$$\therefore 2.44 = \sqrt{\frac{478.67 + t^2}{7} - \left(\frac{51.7 + t}{7}\right)^2}$$

$$\therefore 5.9536 = \frac{478.67 + t^2}{7} - \left(\frac{2672.89 + 103.4t + t^2}{49}\right)$$

$$\therefore 291.7264 = 3350.69 + 7t^2 - 2672.89 - 103.4t - t^2$$

(x by 49)

$$\therefore 0 = 6t^2 - 103.4t + 386.0736$$

$$\therefore t = 11.76, 5.47$$