

AQA – Confidence intervals – A2 Further Mathematics Statistics**1. June/2021/Paper_7367/3S/No.4**

Oscar is studying the daily maximum temperature in °C in a village during the month of June.

He constructs a 95% confidence interval of width 0.8 °C using a random sample of 150 days.

He assumes that the daily maximum temperature has a normal distribution.

- (a) Find the standard deviation of Oscar's sample, giving your answer to three significant figures.

[3 marks]

- (b) Oscar calculates the mean of his sample to be 25.3 °C

He claims that the population mean is 26.0 °C

Explain whether or not his confidence interval supports his claim.

[2 marks]

- (c) Explain how Oscar could reduce the width of his 95% confidence interval.

[1 mark]