Standard deviation

Grade 7 | Higher | 5 questions, 21 marks

GCSE Statistics topic practice

Name: _____ **Date:** _____ **Score:** _____ **/ 21**

1 The masses, x kg, of 10 parcels in a delivery van are recorded. The results are summarised below.

$\Sigma x = 150$ $\Sigma x^2 = 2290$

a. Work out the mean mass of the parcels. (1)

b. Calculate the standard deviation of the masses of the parcels. (2)

(3 marks)

2 The waiting times, in minutes, of six patients at Clinic A are shown below.

12 15 9 14 10 12

a. Calculate the standard deviation of these waiting times. Give your answer correct to 2 decimal places. (3)

b. At Clinic B the mean waiting time is 12 minutes and the standard deviation is 4.5 minutes. Compare the consistency of the waiting times at the two clinics. (1)

(4 marks)

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3 Dawit counts the number of customers in his cafe at midday on each of five days.

21 26 28 30 35

Number of customers, x	x − mean	$(x - \text{mean})^2$
21	−7	49
26		
28		
30		
35		

a. Show that the mean number of customers is 28. (1)

b. Complete the table. (1)

c. Calculate the standard deviation of the number of customers. Give your answer correct to 2 decimal places. (2)

(4 marks)

4 Farah times 8 journeys to work on bus Route A. The times, x minutes, are summarised below.

$\Sigma x = 280$ $\Sigma x^2 = 9928$

For 8 journeys on bus Route B, the mean time is 33 minutes and the standard deviation is 6.5 minutes.

a. Calculate the mean and the standard deviation of the times for Route A. (3)

b. Compare the journey times on Route A with the journey times on Route B. (2)

(5 marks)

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5 The heights, x cm, of the 20 students in a Year 11 class have a mean of 160 cm and a standard deviation of 5 cm.

a. Work out the value of Σx^2 for these 20 students. (3)

b. A new student who is exactly 160 cm tall joins the class. Without doing any more calculations, state whether the standard deviation of the heights will go up, go down or stay the same. Give a reason for your answer. (2)

(5 marks)

End of questions | Total 21 marks

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