Exercise 2

Paper 1 style · No calculator

2 4 marks SL 4.3 ●●○ Typical

The mean of 8 numbers is 15 and their standard deviation is 4.

(a) A ninth number is added and the mean becomes 16. Find the ninth number. **[2]**

(b) Instead, each of the original 8 numbers is multiplied by 3 and then 2 is subtracted. Write down the new mean and the new standard deviation. **[2]**

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

$9 \times 16 - 8 \times 15 = 144 - 120$ **(M1)**

24 **A1**

Total 2 marks

Note Totals first: the sums, not the means, add.

MARKSCHEME (b)

mean $3 \times 15 - 2 = 43$ **A1**

standard deviation $3 \times 4 = 12$ **A1**

Total 2 marks

Note Subtracting 2 does not change the spread.