Marked example 2

Paper 1 style · No calculator

2 4 marks SL 4.3 ●●○ Typical

The mean of 10 numbers is 12 and their standard deviation is 3.

(a) An eleventh number is added and the mean becomes 12.5. Find the eleventh number. **[2]**

(b) Instead, each of the original 10 numbers is multiplied by 2 and then 5 is added. Write down the new mean and the new standard deviation. **[2]**

MARKSCHEME (a)

$11 \times 12.5 - 10 \times 12 = 137.5 - 120$ **(M1)**

17.5 **A1**

Total 2 marks

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

MARKSCHEME (b)

mean $2 \times 12 + 5 = 29$ **A1**

standard deviation $2 \times 3 = 6$ **A1**

Total 2 marks

Note Adding 5 does not change the spread.

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. © 2026 Hence