

Question

From a very large population, a small sample of measurements was taken.

170	168	167	168	162
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Please calculate the (Bessel corrected) sample standard deviation using the following formula:

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

Solution

We fill out the table column by column.

x	$x - \bar{x}$	$(x - \bar{x})^2$
170	3	9
168	1	1
167	0	0
168	1	1
162	-5	25
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$\sum x = 835$		$\sum (x - \bar{x})^2 = 36$
$\bar{x} = 167$		

We are ready for the formula.

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}}$$

$$= \sqrt{\frac{36}{5 - 1}}$$

$$= \sqrt{9}$$

$$= \boxed{3}$$

Meta-information

extype: num exsolution: 3 exname: calc sd