

1. Problem

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

72	79	69	79	76
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Please calculate the average absolute deviation using the following formula:

$$AAD = \frac{\sum |x - \bar{x}|}{n}$$

Solution

We fill out the table column by column.

x	$x - \bar{x}$	$ x - \bar{x} $
72	-3	3
79	4	4
69	-6	6
79	4	4
76	1	1
=====	=====	=====
$\sum x = 375$		$\sum x - \bar{x} = 18$
$\bar{x} = 75$		

We are ready for the formula.

$$s = \frac{\sum |x - \bar{x}|}{n}$$

$$= \frac{18}{5}$$

$$= \boxed{3.6}$$

2. Problem

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

56	64	64	64
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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	$x - \bar{x}$	$(x - \bar{x})^2$
56	-6	36
64	2	4
64	2	4
64	2	4
=====		
$\sum x = 248$		$\sum (x - \bar{x})^2 = 48$
$\bar{x} = 62$		

We are ready for the formula.

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

$$= \sqrt{\frac{48}{4 - 1}}$$

$$= \sqrt{16}$$

$$= \boxed{4}$$