

**1. Problem**

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

93	86	87	92	83
----	----	----	----	----

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} $
93	4.8	4.8
86	-2.2	2.2
87	-1.2	1.2
92	3.8	3.8
83	-5.2	5.2
=====	=====	=====
$\sum x = 441$		$\sum  x - \bar{x}  = 17.2$
$\bar{x} = 88.2$		

We are ready for the formula.

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

$$= \frac{17.2}{5}$$

$$= \boxed{3.44}$$

**2. Problem**

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

69	87	89	69
----	----	----	----

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.

$x$	$x - \bar{x}$	$(x - \bar{x})^2$
69	-9.5	90.25
87	8.5	72.25
89	10.5	110.25
69	-9.5	90.25
=====	=====	=====
$\sum x = 314$		$\sum (x - \bar{x})^2 = 363$
$\bar{x} = 78.5$		

We are ready for the formula.

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

$$= \sqrt{\frac{363}{4 - 1}}$$

$$= \sqrt{121}$$

$$= \boxed{11}$$