

**1. Problem**

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

160	136	136	146	131
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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} $
160	18.2	18.2
136	-5.800000000000001	5.8
136	-5.800000000000001	5.8
146	4.199999999999999	4.2
131	-10.8	10.8
=====	=====	=====
$\sum x = 709$		$\sum  x - \bar{x}  = 44.8$
$\bar{x} = 141.8$		

We are ready for the formula.

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

$$= \frac{44.8}{5}$$

$$= \boxed{8.96}$$

**2. Problem**

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

203	196	193	187	201	192	207
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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.

$x$	$x - \bar{x}$	$(x - \bar{x})^2$
203	6	36
196	-1	1
193	-4	16
187	-10	100
201	4	16
192	-5	25
207	10	100
=====	=====	=====
$\sum x = 1379$		$\sum (x - \bar{x})^2 = 294$
$\bar{x} = 197$		

We are ready for the formula.

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

$$= \sqrt{\frac{294}{7 - 1}}$$

$$= \sqrt{49}$$

$$= \boxed{7}$$