1. **Problem:**
   From a very large population, a small sample of measurements was taken.

168	180	187	195	180	197

   Please calculate the average absolute deviation using the following formula:

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

Solution: We fill out the table column by column.

x	$x - \bar{x}$	$\lvert x - \bar{x}\rvert$
168	-16.5	16.5
180	-4.5	4.5
187	2.5	2.5
195	10.5	10.5
180	-4.5	4.5
197	12.5	12.5
========	========	========
$\sum x = 1107$		$\sum \lvert x - \bar{x}\rvert = 51$
$\bar{x} = 184.5$		

We are ready for the formula.

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

$$= \frac{51}{6}$$

$$= \boxed{8.5}$$

2. **Problem:**
   From a very large population, a small sample of measurements was taken.

164	153	151	162	160

   Please calculate the average absolute deviation using the following formula:

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

Solution: We fill out the table column by column.

x	$x - \bar{x}$	$\lvert x - \bar{x}\rvert$
164	6	6
153	-5	5
151	-7	7
162	4	4
160	2	2
========	========	========
$\sum x = 790$		$\sum \lvert x - \bar{x}\rvert = 24$
$\bar{x} = 158$		

We are ready for the formula.

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

$$= \frac{24}{5}$$

$$= \boxed{4.8}$$

3. **Problem:**
   From a very large population, a small sample of measurements was taken.

40	42	40	40

   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	$x - \bar{x}$	$(x - \bar{x})^2$
40	-0.5	0.25
42	1.5	2.25
40	-0.5	0.25
40	-0.5	0.25
========	========	========
$\sum x = 162$		$\sum (x - \bar{x})^2 = 3$
$\bar{x} = 40.5$		

We are ready for the formula.

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

$$= \sqrt{\frac{3}{4 - 1}}$$

$$= \sqrt{1}$$

$$= \boxed{1}$$

4. **Problem:**
   From a very large population, a small sample of measurements was taken.

150	137	141	139	143

   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	$x - \bar{x}$	$(x - \bar{x})^2$
150	8	64
137	-5	25
141	-1	1
139	-3	9
143	1	1
========	========	========
$\sum x = 710$		$\sum (x - \bar{x})^2 = 100$
$\bar{x} = 142$		

We are ready for the formula.

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

$$= \sqrt{\frac{100}{5 - 1}}$$

$$= \sqrt{25}$$

$$= \boxed{5}$$

5. **Problem:**
   From a very large population, a small sample of measurements was taken.

104	107	107	96	96

   Please calculate the average absolute deviation using the following formula:

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

Solution: We fill out the table column by column.

x	$x - \bar{x}$	$\lvert x - \bar{x}\rvert$
104	2	2
107	5	5
107	5	5
96	-6	6
96	-6	6
========	========	========
$\sum x = 510$		$\sum \lvert x - \bar{x}\rvert = 24$
$\bar{x} = 102$		

We are ready for the formula.

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

$$= \frac{24}{5}$$

$$= \boxed{4.8}$$

6. **Problem:**
   From a very large population, a small sample of measurements was taken.

103	107	103	105	107

   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	$x - \bar{x}$	$(x - \bar{x})^2$
103	-2	4
107	2	4
103	-2	4
105	0	0
107	2	4
========	========	========
$\sum x = 525$		$\sum (x - \bar{x})^2 = 16$
$\bar{x} = 105$		

We are ready for the formula.

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

$$= \sqrt{\frac{16}{5 - 1}}$$

$$= \sqrt{4}$$

$$= \boxed{2}$$