$$\langle t \rangle \text{ or } \overline{t} = \frac{t_1 + t_2 + t_3 + \cdots t_N}{N}$$

$$\sum_{i=1}^{N} t_i = t_1 + t_2 + t_3 + \cdots t_N$$

$$D_i = m_i - \langle m \rangle$$

$$D_i = x_i - \langle x \rangle = \text{"deviation"}$$

$$\sum_i D_i = 0$$

average deviation $= 0$

$$\sum_i (D_i)^2 = \text{non-zero}$$

"Variance"

$$\text{Variance} = \sum_i \left(x_i - \langle x \rangle\right)^2$$

Root mean square } deviation

RMS deviation $= \sqrt{\frac{1}{N}\sum_i (D_i)^2}$

$70 - 23 = \underline{\underline{47}}$

60 ± 3

60 ± 30

average standard deviation

$$\langle x^2 \rangle + \frac{N\langle x \rangle^2}{N} - 2\langle x \rangle \frac{1}{N} \sum x_i$$

$$\langle x^2 \rangle - \langle x \rangle^2 - 2\langle x \rangle \langle x \rangle$$

$$V = \frac{1}{N}\sum_i \left(x_i - \langle x \rangle\right)^2$$

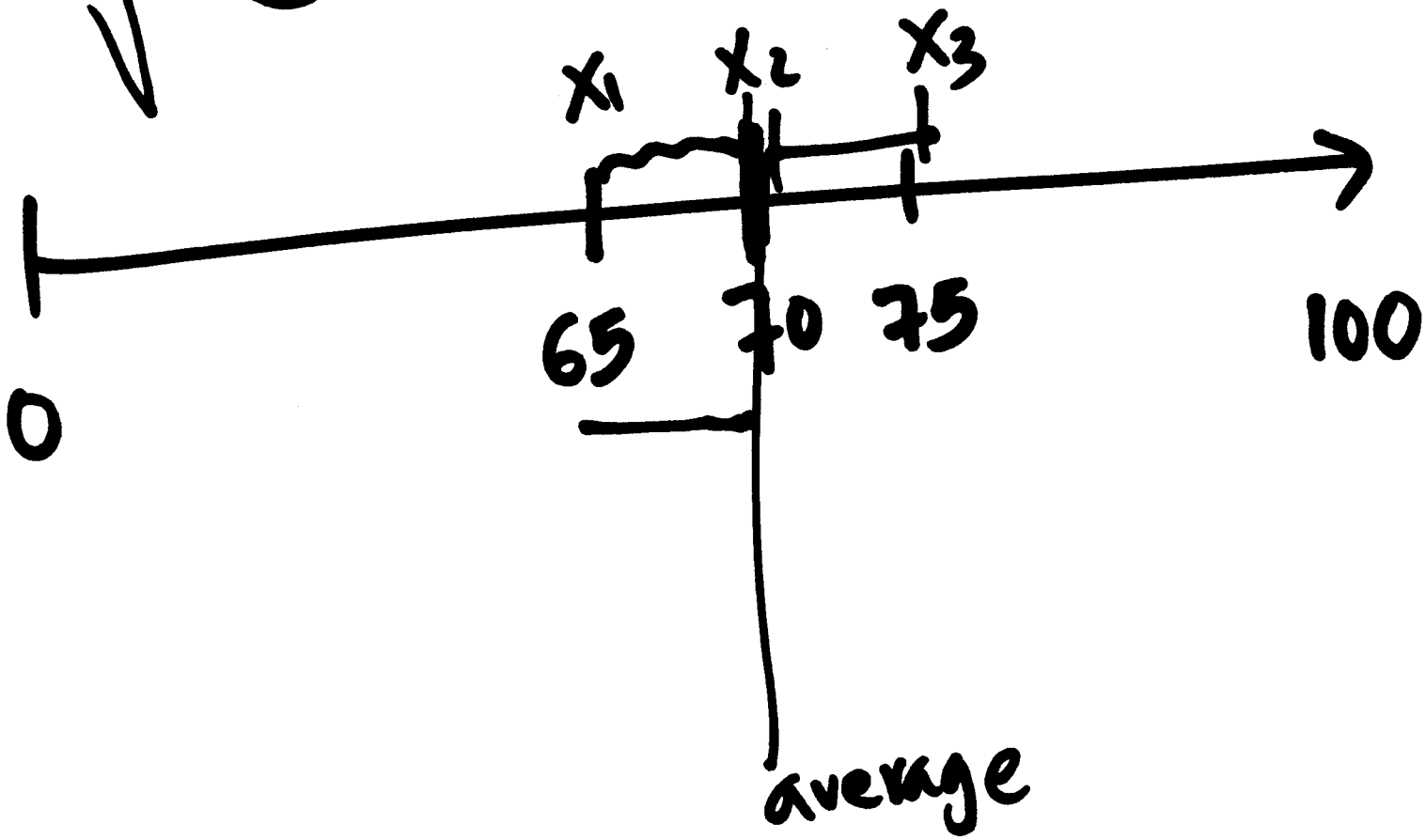
$$= \frac{1}{N}\sum_{i=1}^{N}\left[x_i^2 + \langle x \rangle^2 - 2x_i\langle x \rangle\right]$$

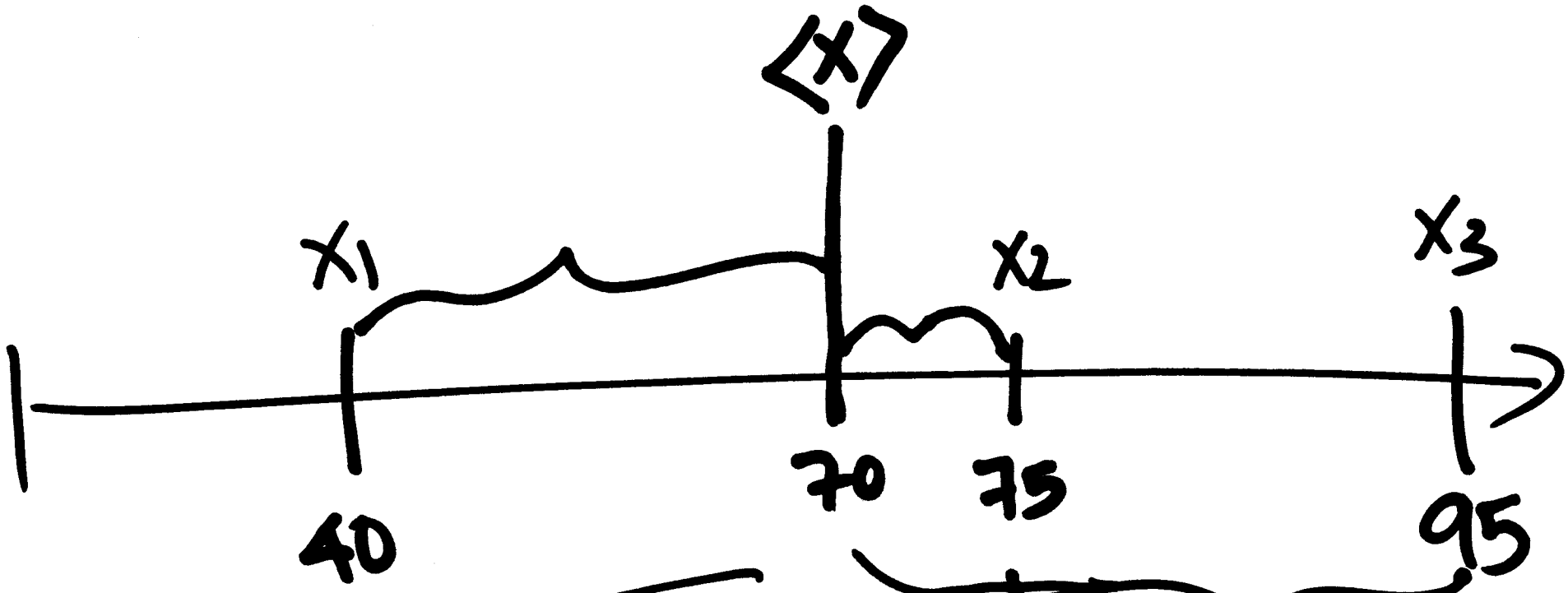
$$= \frac{1}{N}\sum_{i=1}^{N} x_i^2 + \frac{1}{N}\sum_{i=1}^{N}\langle x \rangle^2 - \frac{1}{N}\sum_{i=1}^{N} 2x_i\langle x \rangle$$

$$\text{Variance} = \langle x^2 \rangle - \langle x \rangle^2$$

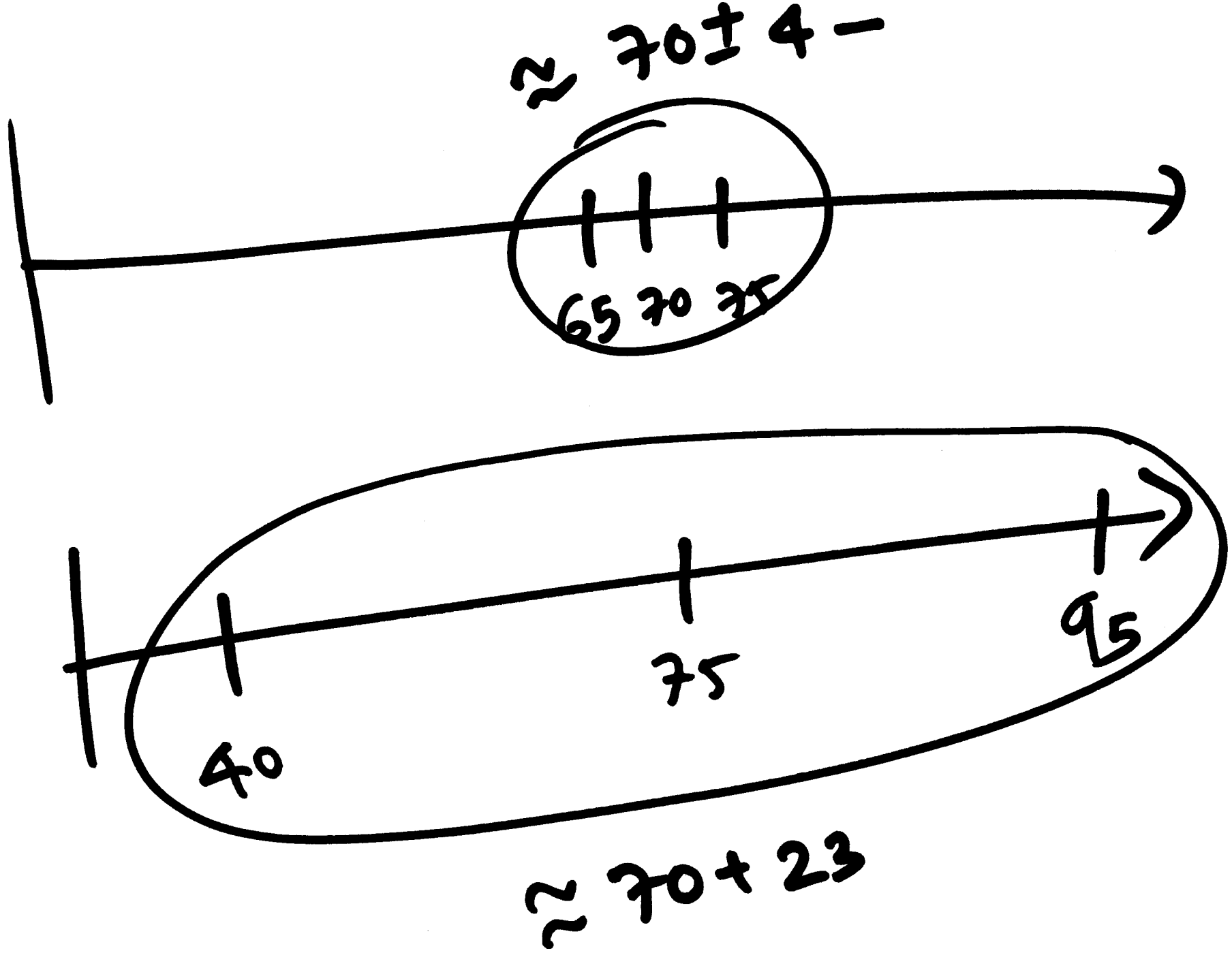
$$\sigma = \sqrt{\langle x^2 \rangle - \langle x \rangle^2}$$

$$(x_1-\bar{x})^2 + (x_3-\bar{x})^2 + 0$$





$$(x_1 - \langle x \rangle)^2 +$$
$$(x_2 - \langle x \rangle)^2 +$$
$$(x_3 - \langle x \rangle)^2 +$$


≈ 70 ± 4 −
65
70
75
40
75
95
≈ 70 + 23