

Индивидуално отклонение:  $x_i - \bar{x}$ 

Личейно отклонение:  $\sigma = \frac{1}{n} \sum_{i=1}^n |x_i - \bar{x}|$   $\sigma = \frac{1}{n} \sum_{i=1}^k |x_i - \bar{x}| \cdot f_i$

①

	$x_i$	$f_i$	$x_i f_i$	$x_i - \bar{x}$	$ x_i - \bar{x} $	$ x_i - \bar{x}  f_i$
[3; 9)	6	7	42	-10,4	10,4	72,8
[9; 13)	12	10	120	-4,4	4,4	44
[15; 21)	18	13	234	1,6	1,6	20,8
[21; 27)	24	6	144	7,6	7,6	45,6
[27; 33]	29	4	116	12,6	12,6	50,4
		40	656			233,6

$$\bar{x} = \frac{1}{n} \sum_{i=1}^k x_i f_i = \frac{1}{40} \cdot 656 = 16,4$$

$$\sigma = \frac{1}{n} \sum_{i=1}^k |x_i - \bar{x}| f_i = \frac{1}{40} \cdot 233,6 = 5,84$$

дисперсия -  $\sigma^2 = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2$  ;  $\sigma^2 = \frac{1}{n} \sum_{i=1}^k (x_i - \bar{x})^2 f_i$

Стандартно отклонение

$$\sigma = \sqrt{\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2} ; \quad \sigma = \sqrt{\frac{1}{n} \sum_{i=1}^k (x_i - \bar{x})^2 f_i}$$

② 5, 10, 12, 18, 20

$i$	$x_i$	$x_i - \bar{x}$	$(x_i - \bar{x})^2$
1	5	-8	64
2	10	-3	9
3	12	-1	1
4	18	5	25
5	20	7	49
	65		148

$$\bar{x} = \frac{65}{5} = 13$$

$$\sigma^2 = \frac{148}{65} = 2,960$$

$$\sigma = \sqrt{2,960} = 5,44$$

③

$i$	$x_i$	$f_i$	$x_i f_i$	$x_i - \bar{x}$	$(x_i - \bar{x})^2$	$(x_i - \bar{x})^2 f_i$
1	4	2	8	-2	4	8
2	5	3	15	-1	1	3
3	6	1	6	0	0	0
4	7	2	14	1	1	2
5	8	1	8	2	4	4
6	9	1	9	3	9	9
	30	10	60		19	26

$$\bar{x} = \frac{60}{10} = 6$$

$$\sigma^2 = \frac{1}{n} \sum_{i=1}^k (x_i - \bar{x})^2 f_i$$

$$\sigma^2 = \frac{26}{10} = 2,6$$

$$\sigma = \sqrt{2,6} = 1,61$$

$i$	$x_i$	$f_i$	$x_i f_i$	$x_i - \bar{x}$	$(x_i - \bar{x})^2$	$(x_i - \bar{x})^2 f_i$	$\bar{x} = \frac{880}{40} = 22$
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$$\sigma = \sqrt{2,6} = 1,61$$

④

i		$x_i$	$f_i$	$x_i \cdot f_i$	$x_i - \bar{x}$	$(x_i - \bar{x})^2$	$(x_i - \bar{x})^2 \cdot f_i$
1	[2;10)	6	5	30	-16	256	1280
2	[10;14)	14	10	140	8	64	640
3	[18;22)	22	12	264	0	0	0
4	[26;30)	30	8	240	8	64	512
5	[34;38)	38	3	114	16	256	768
6	[42;50)	46	2	92	24	576	1152
			<u>40</u>	<u>880</u>			<u>4352</u>

$\bar{x} = \frac{880}{40} = 22$   
 $\sigma^2 = \frac{4352}{40} = 108,8$   
 $\sigma = \sqrt{108,8} = 10,43$

⑤

	1	2	3	4	5	6	7	8
I	25	25	26	20	27	30	24	23
II	23	26	25	25	24	24	26	27

I i	$x_i$	$f_i$	$x_i \cdot f_i$	$x_i - \bar{x}$	$ x_i - \bar{x} $	$(x_i - \bar{x})^2$	$(x_i - \bar{x})^2 \cdot f_i$
1	20	1	20	-5	5	25	25
2	23	1	23	-2	2	4	4
3	24	1	24	-1	1	1	1
4	25	2	50	0	0	0	0
5	26	1	26	1	1	1	1
6	27	1	27	2	2	4	4
7	30	1	30	5	5	25	25
		<u>8</u>	<u>200</u>		<u>16</u>	<u>60</u>	<u>60</u>

$\bar{x} = \frac{200}{8} = 25$

$$\sigma = \frac{1}{n} \sum_{i=1}^n |x_i - \bar{x}| = \frac{16}{8} = 2$$

$$\sigma^2 = \frac{1}{n} \sum_{i=1}^n |x_i - \bar{x}|^2 = \frac{60}{8} = \frac{30}{4} = 7,5$$

$$\sigma = \sqrt{7,5} = 2,74$$

II