Дом. Работа - kddinev18

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(1)

i	x_i	f_i	$x_i f_i$	$x_i-\bar{x}$	$\lvert x_i-\bar{x}\rvert$	$(x_i-\bar{x})^2$	$(x_i-\bar{x})^2 f_i$
1	10	1	10	-13	13	169	169
2	14	1	14	-9	9	81	81
3	16	1	16	-7	7	49	49
4	18	1	18	-5	5	25	25
5	20	1	20	-3	3	9	9
6	25	1	25	2	2	4	4
7	28	1	28	5	5	25	25
8	30	1	30	7	7	49	49
9	34	1	34	11	11	121	121
10	35	1	35	12	12	144	144
	230				74	676	

$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i = \frac{1}{10}\cdot 230 = 23$

$\sigma^2 = \frac{1}{n}\sum_{i=1}^{n}(x_i-\bar{x})^2 = \frac{1}{10}\cdot 676 = 67{,}6$

$\sigma^2 = 67{,}6$, $\sigma = \sqrt{67{,}6} \approx 8$

$\delta = \frac{1}{n}\sum_{i=1}^{n}|x_i-\bar{x}| = \frac{1}{10}\cdot 74 = 7{,}4$

(2)

i	x_i	f_i	$x_i f_i$	$x_i-\bar{x}$	$\lvert x_i-\bar{x}\rvert$	$\lvert x_i-\bar{x}\rvert f_i$	$(x_i-\bar{x})^2$	$(x_i-\bar{x})^2 f_i$
1	3	2	6	-7	7	14	49	98
2	4	3	12	-6	6	18	36	108
3	6	6	36	-4	4	24	16	96
4	8	9	72	-2	2	18	4	36
5	10	11	110	0	0	0	0	0
6	12	10	120	2	2	20	4	40
7	15	6	90	5	5	30	25	150
8	18	3	54	8	8	24	64	192
9		50	500			148		720
10								

$\bar{x} = \frac{1}{n}\sum_{i=1}^{k} x_i f_i = \frac{1}{50}\cdot 500 = 10$

$\delta = \frac{1}{n}\sum_{i=1}^{k}|x_i-\bar{x}|f_i = \frac{148}{50} = 2{,}96$

$\sigma^2 = \frac{1}{n}\sum_{i=1}^{k}(x_i-\bar{x})^2 f_i = \frac{1}{50}\cdot 720 = 14{,}4$

$\sigma = \sqrt{14{,}4} \approx 3{,}79$

(3)

	x_i	f_i	$x_i f_i$	$x_i-\bar{x}$	$\lvert x_i-\bar{x}\rvert$	$\lvert x_i-\bar{x}\rvert f_i$	$(x_i-\bar{x})^2$	$(x_i-\bar{x})^2 f_i$
[2;6)	4	4	16	-11	11	44	121	484
[6;10)	8	5	40	-7	7	35	49	245
[10;14)	12	8	96	-3	3	24	9	72
[14;18)	16	10	160	1	1	10	1	10
[18;22)	20	8	160	5	5	40	25	200
[22;26)	24	3	72	9	9	27	81	243
[26;30]	28	2	56	13	13	26	169	338
		40	600					1592

$\bar{x} = \frac{1}{n}\sum_{i=1}^{k} x_i f_i = \frac{1}{40}\cdot 600 = 15$

$\delta = \frac{1}{n}\sum_{i=1}^{k}|x_i-\bar{x}|f_i = \frac{1}{40}\cdot 206 = 5{,}15$

$\sigma^2 = \frac{1}{n}\sum_{i=1}^{k}(x_i-\bar{x})^2 f_i = \frac{1}{40}\cdot 1592 = 39{,}8$

$\sigma = \sqrt{39{,}8} \approx 6{,}3$

(1)

i	x_i	f_i	$x_i f_i$	$x_i-\bar{x}$	$\lvert x_i-\bar{x}\rvert$	$\lvert x_i-\bar{x}\rvert f_i$	$(x_i-\bar{x})^2$	$(x_i-\bar{x})^2 f_i$
1	2	5	10	-3	3	15	9	45
2	3	6	18	-2	2	12	4	24
3	4	8	32	-1	1	8	1	8
4	5	10	50	0	0	0	0	0
5	6	11	66	1	1	11	1	11
6	7	6	42	2	2	12	4	24
7	8	4	32	3	3	12	9	36
8		50	250			70		148
9								
10								

$R = x_{max} - x_{min} = 8-2 = 6$

$\bar{x} = \frac{1}{n}\cdot\sum_{i=1}^{k} x_i f_i = \frac{1}{50}\cdot 250 = 5$

$\delta = \frac{1}{n}\cdot\sum_{i=1}^{k}|x_i-\bar{x}|f_i = \frac{1}{50}\cdot 70 = 1{,}4$

$\sigma^2 = \frac{1}{n}\sum_{i=1}^{7}(x_i-\bar{x})^2 f_i = \frac{1}{50}\cdot 148 = 2{,}96$

$\sigma = \sqrt{2{,}96} = 1{,}72$

(2)

	x_i	f_i	$x_i f_i$	$x_i-\bar{x}$	$\lvert x_i-\bar{x}\rvert$	$\lvert x_i-\bar{x}\rvert f_i$	$(x_i-\bar{x})^2$	$(x_i-\bar{x})^2 f_i$
[1;3)	2	12	24	-4	4	48	16	192
[3;5)	4	18	72	-2	2	36	4	72
[5;7)	6	24	144	0	0	0	0	0
[7;9)	8	14	112	2	2	28	4	56
[9;11)	10	8	80	4	4	32	16	128

$\bar{x} = \frac{1}{n}\cdot\sum_{i=1}^{k} x_i f_i = \frac{1}{77}\cdot 480 = 6{,}23 \approx 6$

$\delta = \frac{1}{n}\cdot\sum_{i=1}^{k}|x_i-\bar{x}|f_i = \frac{1}{77}\cdot 168 = 2{,}18$

[5;7)	6	24	144	0	0	0	0	0
[7;9)	8	14	112	2	2	28	4	56
[9;11)	10	8	80	4	4	32	16	128
[11;13]	12	4	48	6	6	24	36	144
		77	480			168		592

$$\delta = \frac{1}{n} \cdot \sum_{i=1}^{k} |x_i - \bar{x}| f_i = \frac{1}{77} \cdot 168 = 2{,}18$$

$$\sigma^2 = \frac{1}{n} \cdot \sum_{i=1}^{k} (x_i - \bar{x})^2 f_i = \frac{1}{77} \cdot 592 = 7{,}68$$

$$\sigma = \sqrt{7{,}68} = 2{,}77$$