

دو احتمال مساوی، هر دو احتمال مساوی
 حالتی که هر دو عدد زوج باشد
 احتمال هر دو عدد زوج: $\frac{1}{3}$

$$\mu_{\bar{x}} = \frac{3}{5} = 0,6$$

$$S_{\bar{x}} = \frac{s_x}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$$

$$s_x = \sqrt{E(x^2) - [E(x)]^2}$$

$$E(x^2) = \frac{\sum x_i^2}{n}$$

$x=x_i$	x_i^2	$x_i - \mu_x$	$(x_i - \mu_x)^2$
0	0	-0,6	0,36
0	0	-0,6	0,36
1	1	0,4	0,16
1	1	0,4	0,16
1	1	0,4	0,16
Σ	3	0	1,2

$$s_x = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n}} = \sqrt{\frac{1,2}{5}} = \sqrt{0,24} \approx 0,49$$

$$\therefore S_{\bar{x}} = \frac{0,49}{\sqrt{3}} \sqrt{\frac{5-3}{5-1}} = 0,2$$

$$n = C_3^5 = \frac{5!}{3!2!} = \frac{3 \times 4 \times 5}{3 \times 2} = 10$$

- $(1, 2, 0), (1, 3, 1), (1, 4, 0)$
 $(2, 1, 1), (2, 3, 0), (2, 4, 1)$
 $(3, 1, 0), (3, 4, 1), (3, 5, 0)$
 $(4, 1, 1), (4, 5, 0)$



تعداد	فرمانت	احتمال
0	0, 0, 0	$(1, 2, 0)$
$\frac{1}{3}$	0, 1, 0	$(2, 3, 1)$
$\frac{2}{3}$	1, 1, 0	$(3, 4, 1)$
$\frac{2}{3}$	1, 1, 1	$(4, 5, 1)$
$\frac{2}{3}$	1, 1, 0	$(5, 3, 2)$
$\frac{1}{3}$	0, 1, 1	$(1, 4, 2)$
$\frac{1}{3}$	0, 1, 0	$(2, 5, 2)$
1	1, 1, 1	$(3, 4, 3)$
1	1, 1, 0	$(4, 5, 3)$
1	1, 1, 1	$(5, 5, 4)$

9

$$\mu_{\bar{x}} = E(\bar{x}) = \sum_{i=1}^n p_i \cdot \bar{x}_i$$

~~$$0 \left(\frac{1}{10} \right) + \frac{1}{3} \left(\frac{3}{10} \right) + \frac{2}{3} \left(\frac{3}{10} \right) + \frac{1}{3} \left(\frac{3}{10} \right)$$

$$= \frac{1}{3} + \frac{2}{3} + \frac{1}{3}$$~~

P_i	\bar{x}_i	f_i
$\frac{1}{10}$	1	0
$\frac{3}{10}$	3	$\frac{1}{3}$
$\frac{3}{10}$	3	$\frac{2}{3}$
$\frac{3}{10}$	3	1
1	10	Σ

$$\mu_{\bar{x}} = E(\bar{x}) = 0 \left(\frac{1}{10} \right) + \frac{1}{3} \left(\frac{3}{10} \right) + \frac{2}{3} \left(\frac{3}{10} \right) + \frac{1}{3} \left(\frac{3}{10} \right)$$

$$= \frac{1}{10} + \frac{2}{10} + \frac{3}{10} = \frac{6}{10} = 0,6$$

$$\sigma_{\bar{x}}^2 = \frac{\sum (\bar{x}_i - \mu_{\bar{x}})^2 f_i}{\sum f_i} = \frac{1,06}{10} = 0,106$$

\bar{x}_i	f_i	$(\bar{x}_i - \mu_{\bar{x}})^2 f_i$
0	1	0,36
$\frac{1}{3}$	3	0,25
$\frac{2}{3}$	3	0,05
1	3	0,48
Σ	10	1,06

$$\sigma_{\bar{x}} = \sqrt{0,106} = 0,32$$

$$E x_1: (0 - 0,6)^2 \cdot (1) = 0,36$$

$$E x_2: \left(\frac{1}{3} - 0,6 \right)^2 \cdot (3) = 0,2533333333$$

$$E x_3: \left(\frac{2}{3} - 0,6 \right)^2 \cdot (3) = 0,05333333332$$

$$E x_4: (1 - 0,6)^2 \cdot (3) = 0,48$$

$$\Sigma = 1,0666666662$$

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$$\alpha = 5\%, \delta = 9$$

$$z_{0.025} = 1.96, \mu = \frac{2000}{200} = 5$$

$$E = |\bar{x} - \mu| = |4 - 5| = 1$$

$$n \geq \left(\frac{z_{\frac{\alpha}{2}} \delta}{E} \right)^2 \geq \left(\frac{1.96(9)}{1} \right)^2$$

$$\therefore n \geq 17.64, \boxed{n \geq 18} \text{ Ans}$$