

第38回 2級 問3

ラベル	合	不	個数
A	280	40	320
B	200	10	210
C	230	35	265
D	190	15	205
計	900	100	1000

① 期待度数

$$A: \frac{900 \times 320}{1000} = 288, 320 - 288 = 32$$

$$B: \frac{900 \times 210}{1000} = 189, 210 - 189 = 21$$

$$C: \frac{900 \times 265}{1000} = 238.5, 265 - 238.5 = 26.5$$

$$D: \frac{900 \times 205}{1000} = 184.5, 205 - 184.5 = 20.5$$

① 期待度数表

A	<u>288</u> ㊦	32	320
B	189	<u>21</u> ㊦	210
C	<u>238.5</u> ㊦	26.5	265
D	184.5	20.5	205
	900	100	1000

$$A: 280 - 288 = -8, 40 - 32 = 8$$

$$B: 200 - 189 = 11, 10 - 21 = -11$$

$$C: 230 - 238.5 = -8.5, 35 - 26.5 = 8.5$$

$$D: 190 - 184.5 = 5.5, 15 - 20.5 = -5.5$$

② 実測と期待の差

A	-8	8	0
B	<u>11</u> ㊦	-11	0
C	-8.5	<u>8.5</u> ㊦	0
D	5.5	<u>-5.5</u> ㊦	0
	0	0	

(14) ㄥ

(15) ㄥ

(16) ㄥ

(17) ㄥ

(18) ㄥ

$$\begin{aligned} \textcircled{3} \chi_0^2 &= \frac{-8^2}{288} + \frac{8^2}{32} + \frac{11^2}{189} + \frac{-11^2}{21} + \frac{-8.5^2}{238.5} + \frac{8.5^2}{26.5} + \frac{5.5^2}{184.5} + \frac{-5.5^2}{20.5} \\ &= 13.29325 \dots \div \underline{13.293} \textcircled{+} \end{aligned}$$

(19) ㄥ

$$\phi = (4-1)(2-1) = 3$$

$$\text{棄却域 } \chi_0^2 > \chi^2(3, 0.05) = 7.81$$

(20) ㄥ

(21) ㄥ