

CHI-Square Assignment

①

Q1. 1600 cards

ob	ex.	
404	400	.04
420	400	1
400	400	0
376	400	1.44
<hr/> 1600		<hr/> 2.48

$$\chi^2 = 2.48$$

$$\chi^2_{\text{critical}} = 7.815$$

The suits are equally likely

Q2 op. ex.

404	400	.04
420	400	1
400	400	0
356	400	4.84
82	62	6.45
<hr/> 1662		<hr/> 12.33

$$\chi^2 = 12.33$$

$$\chi^2_{\text{crit.}} = 9.488$$

(a) 62 jokers are expected & 400 cards from each of sets

(b) as χ^2 is 12.33 the cards are not random.

Q.3

Observed	Exp. ratio	Exp.	O-E	χ^2
50	4 strip	$4/16 \times 176 = 44$	6	.82
41	3 spot	$3/16 \times 176 = 33$	8	1.94
85	9 strip	$9/16 \times 176 = 99$	-14	1.98
<u>176</u>	<u>16</u>			<u>4.74</u>

$df = n - 1 = 3 - 1 = 2$ for 2 is 5.991

as 4.74 is less than 5.991 So she did get the predicted outcome.

Q.4

Observed	exp.	χ^2
558	$9/16 \times 994 = 559$.0161
184	$3/16 \times 994 = 186$.0215
193	$3/16 \times 994 = 186$.0263
61	$1/16 \times 994 = 62$.0161
<u>994</u>	<u>16</u>	<u>.079</u>

Prace .05 is 7.815 $df = 3$

Q.5

$df = n - 1 = 5 - 1 = 4$ $\alpha = .05$

Observed	Exp.	O-E	$\chi^2(O-E)^2/E$
A 262	220	42	8.018
B 234	220	14	1.891
C 204	220	-16	1.163
D 190	220	-30	4.091
E 210	220	-10	.455
<u>1100</u>			<u>14.618</u>

$$\frac{1100}{5} = 220$$

$$\lambda^2 = 14.618$$

$$\lambda_{crit}^2 = 9.488$$

$14.618 > 9.488 \therefore$ properties are not same

Q.6.