

Name: _____

Show work needed to justify your answer.

Date: _____

HW: # 31a: Math IBSL - Standard 30 - Theoretical and Experimental Probability

5 points

- 2 The sides of a six-sided spinner are numbered from 1 to 6. The table shows the results for 100 spins.

Number on spinner	1	2	3	4	5	6
Frequency	27	18	17	15	16	7

- a What is the relative frequency of getting a 1?
 b Do you think the spinner is fair? Give a reason for your answer.

The spinner is spun 3000 times.

- c Estimate the number of times the result will be a 4.

(a) $\frac{27}{100}$

(b) Probably not. #1 occurs too often and #6 not enough.

(c) $P(4) = \frac{15}{100} = \frac{3}{20}$

$\left(\frac{3}{20}\right)\left(\frac{3000}{1}\right) = \frac{9000}{20} = 450$

- 3 An eight-sided dice numbered from 1 to 8 is rolled 80 times to determine whether it is fair.

- a If the dice is fair, how many of each number would you expect to get? **10**

The results obtained were:

Number on dice	1	2	3	4	5	6	7	8
Frequency	8	8	12	11	11	12	11	7
Relative frequency								

- b Copy and complete the table with the relative frequency of each of the possible outcomes. Give your answers to 3 significant figures.

The dice is rolled 320 times more.

Number on dice	1	2	3	4	5	6	7	8
Frequency	29	41	43	39	45	46	32	45

- c Using the combined data from the two tables, determine the relative frequency for each possible outcome.

Relative frequency								
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- d Conclude from the data whether the dice is fair.

b) .1, .1, .15, .1375, .1375, .15, .1375, .0875

(c) $P(1) = \frac{8+29}{400} = \frac{37}{400} = 0.0925$

$P(2) = \frac{8+41}{400} = \frac{49}{400} = 0.1225$

$P(3) = \frac{12+43}{400} = \frac{55}{400} = 0.1375$

$P(4) = \frac{11+39}{400} = \frac{50}{400} = 0.125$

$P(5) = \frac{11+45}{400} = \frac{56}{400} = 0.14$

$P(6) = \frac{12+46}{400} = \frac{58}{400} = 0.145$

$P(7) = \frac{11+32}{400} = \frac{43}{400} = 0.1075$

$P(8) = \frac{7+45}{400} = \frac{52}{400} = 0.13$

(d) Probably not. There is a significant difference between $P(1)$ and $P(6)$