

Chance Experiments with Outcomes That Are Not

Equally Likely

Carol is sitting on the bus on the way home from school and is thinking about the fact that she has three homework assignments to do tonight. The table below shows her estimated probabilities of completing 0, 1, 2, or all 3 of the assignments.

Number of Homework Assignments Completed	0	1	2	3
Probability	$\frac{1}{6}$	$\frac{2}{9}$	$\frac{5}{18}$	$\frac{1}{3}$

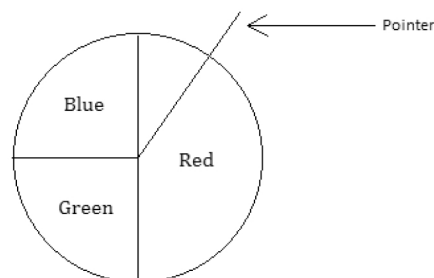
- Writing your answers as fractions in lowest terms, find the probability that Carol completes
 - Exactly one assignment.
 - More than one assignment.
 - At least one assignment.
- Find the probability that the number of homework assignments Carol completes is not exactly 2.
- Carol has a bag containing 3 red chips, 10 blue chips, and 7 green chips. Estimate the probability (as a fraction or decimal) of Carol reaching into her bag and pulling out a green chip.

1. The Gator Girls are a soccer team. The possible number of goals the Gator Girls will score in a game and their probabilities are shown in the table below.

Number of Goals	0	1	2	3	4
Probability	0.22	0.31	0.33	0.11	0.03

Find the probability that the Gator Girls:

- Score more than two goals.
 - Score at least two goals.
 - Do not score exactly 3 goals.
2. The diagram below shows a spinner. The pointer is spun, and the player is awarded a prize according to the color on which the pointer stops.



- What is the probability that the pointer stops in the red region?

- b. Complete the table below showing the probabilities of the three possible results.

Color	Red	Green	Blue
Probability			

- c. Find the probability that the pointer stops on green or blue.
d. Find the probability that the pointer does not stop on green.

3. Wayne asked every student in his class how many siblings (brothers and sisters) they had. Survey results are shown in the table below. (Wayne included himself in the results.)

Number of Siblings	0	1	2	3	4
Number of Students	4	5	14	6	3

(Note: The table tells us that 4 students had no siblings, 5 students had one sibling, 14 students had two siblings, and so on.)

- a. How many students are there in Wayne's class, including Wayne?
b. What is the probability that a randomly selected student does not have any siblings? Write your answer as a fraction in lowest terms.
c. The table below shows the possible number of siblings and the probabilities of each number. Complete the table by writing the probabilities as fractions in lowest terms.

Number of Siblings	0	1	2	3	4
Probability					

- d. Writing your answers as fractions in lowest terms, find the probability that the student
i. Has fewer than two siblings.
ii. Has two or fewer siblings.
iii. Does not have exactly one sibling.

Carol is sitting on the bus on the way home from school and is thinking about the fact that she has three homework assignments to do tonight. The table below shows her estimated probabilities of completing 0, 1, 2, or all 3 of the assignments.

Number of Homework Assignments Completed	0	1	2	3
Probability	$\frac{1}{6}$	$\frac{2}{9}$	$\frac{5}{18}$	$\frac{1}{3}$

1. Writing your answers as fractions in lowest terms, find the probability that Carol completes

- a. Exactly one assignment.

$$\frac{2}{9}$$

- b. More than one assignment.

$$\frac{5}{18} + \frac{1}{3} = \frac{5}{18} + \frac{6}{18} = \frac{11}{18}$$

- c. At least one assignment.

$$\frac{2}{9} + \frac{5}{18} + \frac{1}{3} = \frac{4}{18} + \frac{5}{18} + \frac{6}{18} = \frac{15}{18} = \frac{5}{6}$$

2. Find the probability that the number of homework assignments Carol completes is not exactly 2.

$$1 - \frac{5}{18} = \frac{13}{18}$$

3. Carol has a bag containing 3 red chips, 10 blue chips, and 7 green chips. Estimate the probability (as a fraction or decimal) of Carol reaching into her bag and pulling out a green chip.

An estimate of the probability would be 7 out of 20, $\frac{7}{20}$, or 0.35.

1. The Gator Girls are a soccer team. The possible number of goals the Gator Girls will score in a game and their probabilities are shown in the table below.

Number of Goals	0	1	2	3	4
Probability	0.22	0.31	0.33	0.11	0.03

Find the probability that the Gator Girls:

- a. Score more than two goals.

$$0.11 + 0.03 = 0.14$$

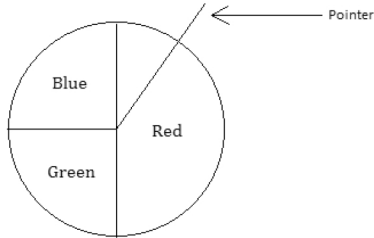
- b. Score at least two goals.

$$0.33 + 0.11 + 0.03 = 0.47$$

- c. Do not score exactly 3 goals.

$$1 - 0.11 = 0.89$$

2. The diagram below shows a spinner. The pointer is spun, and the player is awarded a prize according to the color on which the pointer stops.



- a. What is the probability that the pointer stops in the red region?

$$\frac{1}{2}$$

- b. Complete the table below showing the probabilities of the three possible results.

Color	Red	Green	Blue
Probability	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$

- c. Find the probability that the pointer stops on green or blue.

$$\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$$

- d. Find the probability that the pointer does not stop on green.

$$1 - \frac{1}{4} = \frac{3}{4}$$

3. Wayne asked every student in his class how many siblings (brothers and sisters) they had. Survey results are shown in the table below. (Wayne included himself in the results.)

Number of Siblings	0	1	2	3	4
Number of Students	4	5	14	6	3

(Note: The table tells us that 4 students had no siblings, 5 students had one sibling, 14 students had two siblings, and so on.)

- a. How many students are in Wayne's class, including Wayne?

$$4 + 5 + 14 + 6 + 3 = 32$$

- b. What is the probability that a randomly selected student does not have any siblings? Write your answer as a fraction in lowest terms.

$$\frac{4}{32} = \frac{1}{8}$$

- c. The table below shows the possible number of siblings and the probabilities of each number. Complete the table by writing the probabilities as fractions in lowest terms.

Number of Siblings	0	1	2	3	4
Probability	$\frac{1}{8}$	$\frac{5}{32}$	$\frac{7}{16}$	$\frac{3}{16}$	$\frac{3}{32}$

- d. Writing your answers as fractions in lowest terms, find the probability that the student

- i. Has fewer than two siblings.

$$\frac{1}{8} + \frac{5}{32} = \frac{9}{32}$$

- ii. Has two or fewer siblings.

$$\frac{1}{8} + \frac{5}{32} + \frac{7}{16} = \frac{23}{32}$$

- iii. Does not have exactly one sibling.

$$1 - \frac{5}{32} = \frac{27}{32}$$