

Theoretical & Experimental Probability

1. What is the difference between theoretical and experimental probability?

For questions 2-5, a die is tossed 20 times. The results are shown in the frequency table below.

2. Find the theoretical probability of landing on 3. *How many 3 on a dice?*

$$\frac{1}{6} = \text{about } 17\%$$

3. Find the experimental probability of landing on 3. *How many times did I get a 3?*

$$\frac{5}{20} = 25\%$$

4. Find the theoretical probability of landing on either 5 or 6. *4+2=6*

$$\frac{2}{6} = \text{about } 33\%$$

5. Find the experimental probability of landing on either 5 or 6. *4+2=6*

$$\frac{6}{20} = 30\%$$

# Rolled	Frequency
1	4
2	3
3	5
4	2
5	4
6	2

6. Between 6:00 PM and 7:00 PM, 5 mystery novels, 3 non-fiction books, 7 picture books, and 2 science fiction novels were returned to the library. What is the experimental probability that the next book returned to the library is a picture book?

$$5 + 3 + 7 + 2 = 17$$

$$\frac{7}{17} = \text{about } 41\%$$

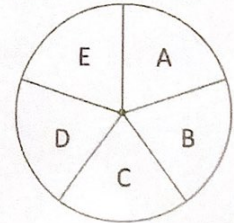
Anna spins the spinner below 30 times, and it lands on C 8 times. Use this information to answer questions 7-10.

7. What is the theoretical probability of landing on C?

$$\frac{1}{5} = 20\%$$

8. What is the experimental probability of landing on C?

$$\frac{8}{30} = \text{about } 27\%$$



9. What would you expect to happen to the experimental probability as you spin more and more times?

I may land on C more times.

Exp may get closer to the theo.

10. If you were to spin the spinner 1,000 times, about how many times would you expect it to land on C? Would you expect it to land on C exactly that many times?

$$\frac{8}{30} = \frac{x}{1000}$$

$$x = 266 \text{ times}$$

NOT exactly that many because this is prob. lots of chance

11. A spinner has 3 sections, labeled red, blue, and yellow. The spinner was spun 40 times, and the results are shown in the table below. Draw a picture of what you think the spinner might look like, based on the experimental probabilities.



red	blue	yellow
21	9	10