

**Alternative Packet: Experimental Probability****Week 6: 5/4-8**

**Experimental probability** is an estimate of the probability that a particular event will happen.

It is called *experimental* because it is based on data collected from experiments or observations.

$$\text{Experimental probability} \approx \frac{\text{number of times a particular event happens}}{\text{total number of trials}}$$

JT is practicing his batting. The pitcher makes 12 pitches. JT hits 8 of the pitches. What is the experimental probability that JT will hit the next pitch?

- A favorable outcome is hitting the pitch.
- The number of favorable outcomes is the number JT hit: 8.
- The number of trials is the total number of pitches: 12.
- The experimental probability that JT will hit the next pitch is  $\frac{8}{12} = \frac{2}{3}$ .

1. Ramon plays outfield. In the last game, 15 balls were hit in his direction. He caught 12 of them. What is the experimental probability that he will catch the next ball hit in his direction?
  - a. What is the number of favorable events? \_\_\_\_\_
  - b. What is the total number of trials? \_\_\_\_\_
  - c. What is the experimental probability that Ramon will catch the next ball hit in his direction?  
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2. In one inning Tori pitched 9 strikes and 5 balls. What is the experimental probability that the next pitch she throws will be a strike?
  - a. What is the number of favorable events? \_\_\_\_\_
  - b. What is the total number of trials? \_\_\_\_\_
  - c. What is the experimental probability that the next pitch Tori throws will be a strike?  
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3. Tori threw 5 pitches for one batter. Kevin, the catcher, caught 4 of those pitches. What is the experimental probability that Kevin will **not** catch the next pitch? Show your work.  
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**Alternative Packet: Experimental Probability****Week 6: 5/4-8****Find each experimental probability. The first one is done for you.**

1. Kathy played a game of darts. She threw 15 darts and hit the target 9 times. What is the experimental probability that Kathy will hit the target the next time she throws a dart?

a. What is the number of favorable outcomes? 9

b. What is the total number of trials? 15

- c. What is the experimental probability that Kathy will hit the target the next time she throws a dart?

$$\frac{9}{15} = \frac{3}{5}$$


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2. Between 10 A.M. and 11 A.M., 48 people came into Brad's store. 40 of them made a purchase. What is the experimental probability that the next person to come into the store will make a purchase?

a. What is the number of favorable outcomes? \_\_\_\_\_

b. What is the total number of trials? \_\_\_\_\_

- c. What is the experimental probability the next person to come into the store will make a purchase?
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3. Sharona kept track of the colors of cars that passed her house one afternoon. She collected her data in the table below.

Car Color	Number	Car Color	Number
red	12	white	42
blue	9	silver	36
black	32	yellow	1

What is the experimental probability that the next car will be silver?

a. What is the number of favorable outcomes? \_\_\_\_\_

b. What is the total number of trials? \_\_\_\_\_

- c. What is the experimental probability that the next car to pass Sharona's house will be silver?
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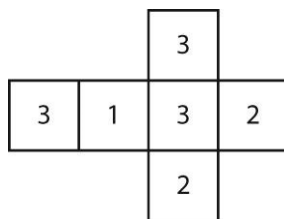
- d. What is the experimental probability that the next car to pass Sharona's house will **not** be silver?
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Experimental probability is a ratio. The ratio compares the number of times an event occurs to the total number of trials.

A trial is the number of times that an experiment is carried out or an observation is made.

$$\text{Experimental probability} \approx \frac{\text{number of times a favorable event happens}}{\text{total number of trials}}$$

**The net of a number cube is shown below. Use the net to complete Exercises 1–2.**



1. Predict which number you will land on most often. Explain.

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2. Predict which number you will land on least often. Explain.

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Actual events in an experiment may or may not match your prediction. The table shows the outcomes of tossing the above number cube 100 times

Outcome	1	2	3
Number of Tosses	39	28	33

**Use the table to complete Exercises 3–4.**

3. Did your prediction for landing on 1 match the outcome shown in the table? Explain.

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4. Did your prediction for landing on 3 match the outcome shown in the table? Explain.

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