

Math 7 - Unit 7

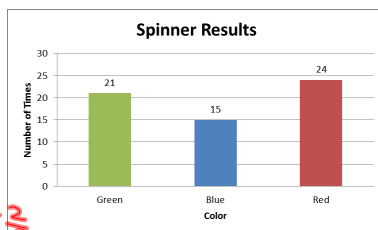
Day 5 - Experimental Probability

Lesson Objectives:

- I can approximate the probability of a chance event by collecting data on the chance process that produces it.
- I can approximate the probability of a chance event by observing its long-run relative frequency.
- I can predict the approximate relative frequency given the probability.

While theoretical probability is what **SHOULD** happen, experimental probability is what **DID** happen when an experiment took place.

The graph shows the results of an experiment in which a spinner with 3 equal sections is spun sixty times. Find the experimental probability of spinning red for this experiment.



$$P(\text{red}) = \frac{24}{60} = \frac{4}{10} = \frac{2}{5}$$

Probability that is based on repeated trials of an experiment is called experimental probability.

$$P(\text{event}) = \frac{\text{number of times the event occurs}}{\text{total number of trials}}$$

Fifteen out of 25 emails in your inbox are junk emails. What is the experimental probability that your next email is junk?

$$P(\text{junk mail}) = \frac{15}{25} = \frac{3}{5}$$

It rains 2 out of the last 12 days in March. If this trend continues, how many rainy days would you expect in April?

$$\frac{2}{12} = \frac{1}{6} \cdot \frac{5}{5} = \frac{5}{30} \quad 5 \text{ rainy days}$$

The theoretical probability and the experimental probability of an event may or may not be the same. As the number attempts increases, the theoretical probability and the experimental probability should become closer in value.

The chart shows the totals for each number after 50 rolls.

	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$
	1	2	3	4	5	6
50 rolls	6	12	6	8	10	8

Find the experiment probability for each number after 50 rolls. How does this compare to the theoretical probability?

$$\begin{array}{l} \frac{6}{50} \quad \frac{12}{50} \quad \frac{6}{50} \quad \frac{8}{50} \quad \frac{10}{50} \quad \frac{8}{50} \\ \frac{3}{25} \quad \frac{6}{25} \quad \frac{3}{25} \quad \frac{4}{25} \quad \frac{1}{5} \quad \frac{4}{25} \end{array}$$

Experimental probability measures what has happened in the past. Theoretical probability measures what should happen in the future.

Homework

9.3 pg 402 #1-28

* Individual Think Time *



What to do if you get stuck...

- Reread the problem. Did you write it down correctly?
- Reread your notes. Is there a problem similar that we did together in class?
- Find a problem similar in your book. Try this one to see if it helps.
- Skip the problem until the end of Individual Think Time. Then ask an "educated" question of a neighbor or Mrs. Call.

Today we're working by...

