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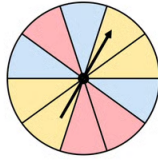
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Experimental and theoretical probability

A spinner with 10 equally sized slices has 4 yellow slices, 3 red slices, and 3 blue slices. Linda spun the dial 1000 times and got the following results.



Outcome	Yellow	Red	Blue
Number of Spins	398	285	317

Answer the following. Round your answers to the nearest thousandths.

- (a) From Linda's results, compute the experimental probability of landing on yellow. 0.398 *use chart* $\frac{398 \text{ yellow}}{1000 \text{ total}}$
- (b) Assuming that the spinner is fair, compute the theoretical probability of landing on yellow. 0.4 $\frac{4 \text{ yellow}}{10 \text{ total}}$
- (c) Assuming that the spinner is fair, choose the statement below that is true.
- ☒ The larger the number of spins, the greater the likelihood that the experimental probability will be close to the theoretical probability.
 - ☐ The experimental probability will never be very close to the theoretical probability, no matter the number of spins.
 - ☐ The smaller the number of spins, the greater the likelihood that the experimental probability will be close to the theoretical probability.

Experimental and theoretical probability

The state lottery board is examining the machine that randomly picks the lottery numbers. On each trial, the machine outputs a ball with one of the digits 0 through 9 on it. (The ball is then replaced in the machine.) The lottery board tested the machine for 50 trials and got the following results.

Outcome	0	1	2	3	4	5	6	7	8	9
Number of Trials	6	4	8	4	5	7	6	3	3	4

Answer the following. Round your answers to the nearest thousandths.

- (a) From these results, compute the experimental probability of getting a 6. 0.12 $\frac{6}{50}$ $\frac{\#6}{\# \text{ of trials}}$
- (b) Assuming that the machine is fair, compute the theoretical probability of getting a 6. $\frac{1}{10} = 0.10$
- (c) Assuming that the machine is fair, choose the statement below that is true.
- ☐ With a small number of trials, it is surprising when the experimental probability is much greater than the theoretical probability.
 - ☒ With a small number of trials, it is not surprising when the experimental probability is much greater than the theoretical probability.
 - ☐ With a small number of trials, the experimental probability will always be much greater than the theoretical probability.

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