

Lesson 4 Practice Problems

1. A carnival game has 160 rubber ducks floating in a pool. The person playing the game takes out one duck and looks at it.
 - If there's a red mark on the bottom of the duck, the person wins a small prize.
 - If there's a blue mark on the bottom of the duck, the person wins a large prize.
 - Many ducks do not have a mark.

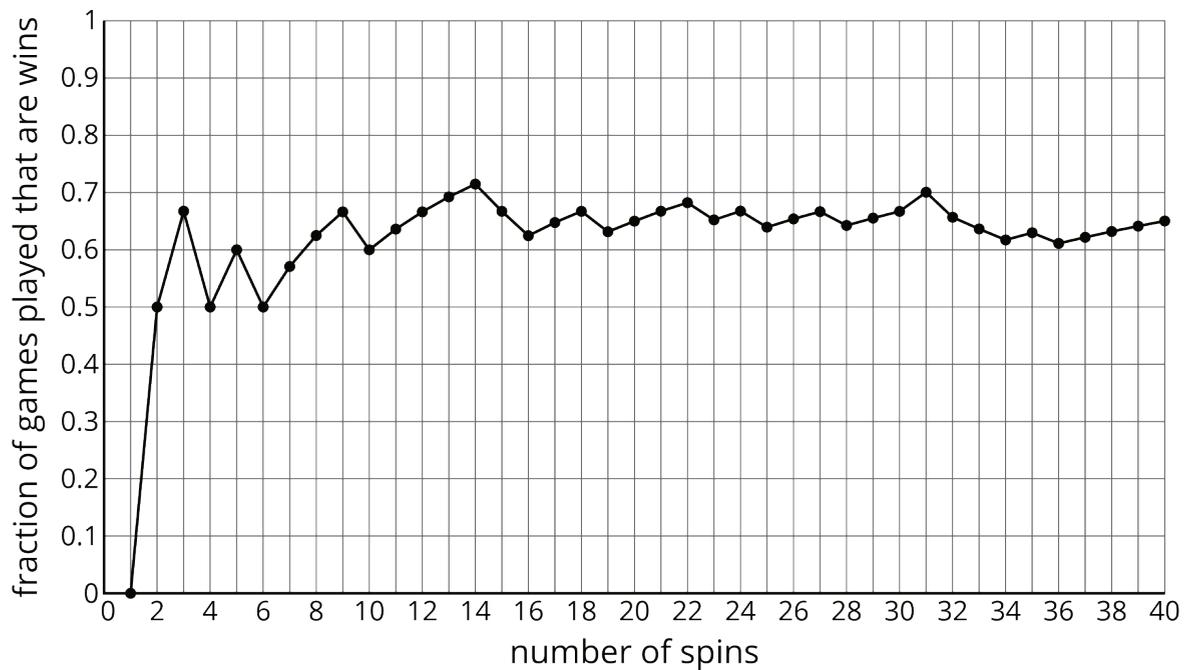
After 50 people have played the game, only 3 of them have won a small prize, and none of them have won a large prize.

Estimate the number of the 160 ducks that you think have red marks on the bottom. Then estimate the number of ducks you think have blue marks. Explain your reasoning.

2. Lin wants to know if flipping a quarter really does have a probability of $\frac{1}{2}$ of landing heads up, so she flips a quarter 10 times. It lands heads up 3 times and tails up 7 times. Has she proven that the probability is not $\frac{1}{2}$? Explain your reasoning.

3. A spinner has four equal sections, with one letter from the word "MATH" in each section.
 - a. You spin the spinner 20 times. About how many times do you expect it will land on A?
 - b. You spin the spinner 80 times. About how many times do you expect it will land on something other than A? Explain your reasoning.

4. A spinner is spun 40 times for a game. Here is a graph showing the fraction of games that are wins under some conditions.



Estimate the probability of a spin winning this game based on the graph.

5. Which event is more likely: rolling a standard number cube and getting an even number, or flipping a coin and having it land heads up?

(From Unit 8, Lesson 2.)

6. Noah will select a letter at random from the word "FLUTE." Lin will select a letter at random from the word "CLARINET."

Which person is more likely to pick the letter "E?" Explain your reasoning.

(From Unit 8, Lesson 3.)