

PB1

A bag contains 2 red, 3 green and 7 red marbles.

What is the fewest number of red marbles that can be added to the bag so that the probability of selecting a red marble from the bag is $\frac{2}{3}$?

Show your work.

PB 2

A bag contains 3 red chips and 5 blue chips.

What is the fewest number of red chips that can be added to the bag so that there will be a two-thirds chance of drawing a red chip?

Explain your answer.

PB 3

The probability of rolling two six sided dice and adding them together to get a sum less than seven is $\frac{15}{36}$.

If Amy rolls the dice 60 times, how many times would you expect the sum her rolls to be less than seven?

a) 22

b) 30

c) 25

d) 9

Explain your choice.

PB 4

First baseman George has been at bat 459 times and gotten 153 hits.

Kendra said, “That means that if George bats six times in one game, he will probably get about two hits.”

Don said, “I disagree, I think George will get no hits because 153 hits out of 459 at bats is poor hitting.”

Who is right?

Explain your choice.

PB 5

The school nurse expects that for every 2 students in a school classroom that to get the flu, 8 students will not get the flu.

Based on this prediction, about how many students are expected to get the flu in a school classroom of 25 students?

Explain your answer.

PB 6

The school expects that for every 3 students in a classroom that get a cold, 8 students will not get a cold.

How many students are expected to get a cold if 16 students in the class don't get a cold?

Explain your answer.

PB 7

The school expects that for every 3 students in a class that bring lunch to school 8 students will buy lunch at school.

How many students would you expect to be in a class if 16 students in the class buy lunch at school?

Show your work.

PB 8

The school estimates that for every 2 students in a class that walk to school, 8 students take the bus to school

Based on this, about how many students in a class take the bus to school if 5 students walk to school?

Explain your answer.

PB 9

A paper bag contains 2 yellow chips, 3 white chips and 5 blue chips.

If Charles adds 4 yellow chips, how many non-yellow chips should he add so that the probability of pulling out a yellow chip is 20%?

Explain your answer.

PB 10

Tom flipped a coin 10 times. His results were:

H H H T T H H H H T

If he continues to flip the same coin 10,000 times, which of the following is the most likely outcome?

- a) 7000 H and 3000 T
- b) 5000 H and 5000 T
- c) You can't tell from only flipping a coin 10 times.
- d) None of the above

Explain your choice.

PB 11

Sue has a bag of 3 black marbles and 5 red marbles.

Mary has a bag with 5 black marbles and 10 red marbles.

Whose bag would you choose to have the best chance of picking a red marble?

Explain your choice.

PB 12

Sue has a bag with 30 black marbles and 50 red marbles.

Mary has a bag with 50 black marbles and 100 red marbles.

Whose bag would you choose to have the best chance of picking a red marble?

Explain your choice.

PB 13

John has a bag with 4 yellow marbles and 3 orange marbles.

Sue will pick one marble from the bag.

Which is most likely to happen?

- a) Sue will pick an orange marble.
- b) Sue will pick a yellow marble.
- c) You can't tell because the chance of picking a yellow marble is the same as the chance of picking an orange marble.

Explain your choice.

PB 14

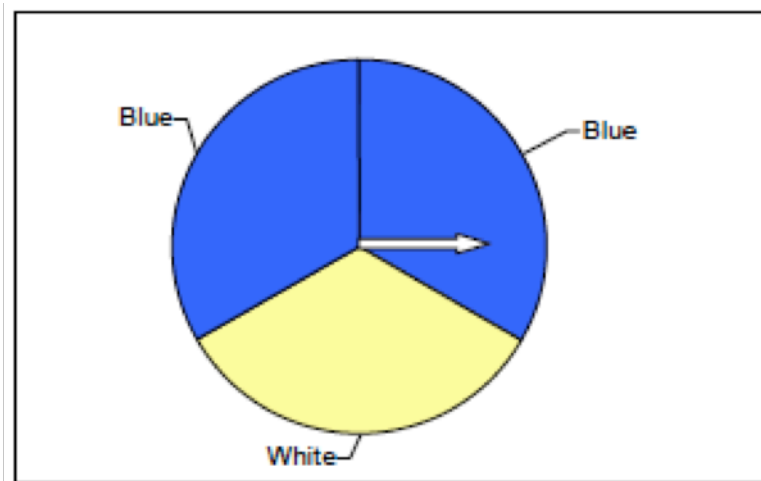
Leah played a game with the spinner shown below.

She selected blue as her color. She wins every time the spinner lands on blue.

How many times do you expect Leah to win in 12 spins?

Explain your answer.

Leah's Spinner



PB 15

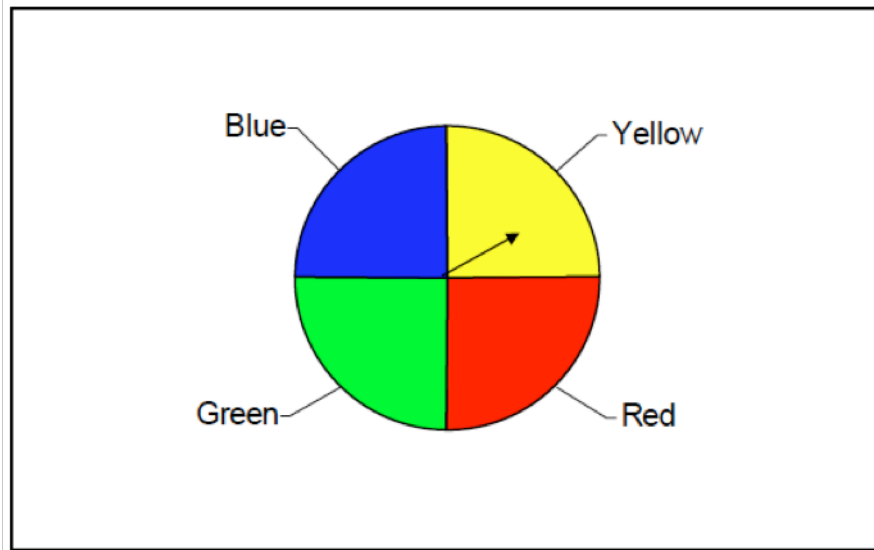
Leah played a game with the spinner shown below.

She selected blue as her color. She wins every time the spinner lands on blue.

How many times do you expect Leah to win in 12 spins?

Explain your answer.

Leah's Spinner



PB 16

Sue has a bag with 3 black marbles and 7 red marbles.

Mary has a bag with 5 black marbles and 10 red marbles.

Whose bag would you choose to have the best chance of picking a red marble?

Explain your answer.