

Section 9/7

1 Question 1.5

Here's a question from Quora: "If a student applies to ten colleges with a 20% chance of being accepted to each, what are the chances that he will be accepted by at least one college?"

Without making any further assumptions, what can you say about this chance?

2 Question 2.5

There are n students in a class. Assume that each student's birthday is equally likely to be any of 365 days of the year, regardless of the birthdays of others.

a) What is the chance that at least one of the students was born on January 1?

b) What is the chance that at least two students have the same birthday?

3 Question 2.6

There are three boxes, each of which contains two coins. One box has two gold coins, one has two silver coins, and one has a gold coin and a silver coin. A box is picked at random and then a coin is picked at random from the box. Given that the coin is gold, what is the chance that the other coin in the box is silver?

4 Question 2.7

In a community, each child born is equally likely to be a boy or a girl regardless of the genders of all others. A family in this community has two children. You see one of them and note that the child is a girl. What is the chance that the other child is a boy? Pick one of the options below and justify your choice.

- $1/4$
- $1/2$
- $1/2$
- $2/3$