Counting and probability

1

A lock code is three digits, each from 0 to 9. Digits can repeat. A code is chosen at random. Find the probability that all three digits are even.

All outcomes $10 \times 10 \times 10 = 1000$

Outcomes wanted $5 \times 5 \times 5 = 125$

Probability

Answer

2

A café has 4 starters, 6 mains and 3 desserts. Soup is one of the starters and 2 of the mains are vegetarian.
Leah picks one of each at random.
Find the probability she picks soup and a vegetarian main.

All outcomes $4 \times 6 \times 3 = 72$

Outcomes wanted

Probability

Answer

3

A password is two different letters from A, B, C, D and E, then a digit from 1 to 9.
One is made at random.
Find the probability that it starts with A and ends with an odd digit.

All outcomes

Outcomes wanted

Probability

Answer

4

The letters of MATHS are put in a row in a random order. Find the probability that the row starts with M and ends with S.

Probability

Answer

5

A fair dice is rolled three times.
Find the probability of getting at least one 6.

Answer

6

Two different cards from 1, 2, 3, 4 and 5 make a two digit number.
Find the probability that the number is even.

Answer

7

A code is three letters, each chosen from the same set of letters, and letters can repeat. The probability of guessing a code in one go is $\frac{1}{512}$. How many letters are in the set?

Answer

8

A captain and a vice captain are picked at random from 8 players.
Find the probability that Ava is given one of the two jobs.

Answer

Counting and probability *further practice*

9

A coin is flipped four times.
Find the probability of getting at least one tail.

Answer

10

Max has 5 tops, 2 of them red, 3 pairs of trousers and 4 pairs of shoes, 1 pair white. He picks one of each at random. Find the probability of a red top and white shoes.

Answer

11

Jo, Sam, Ali and Bea sit in a row of four chairs in a random order.
Find the probability that Jo and Sam sit at the two ends.

Answer

12

A PIN is four different digits from 0 to 9.
One is chosen at random.
Find the probability that every digit is odd.

Answer

13

Three different letters of PRIME are put in a row at random. Find the probability that the first and last letters are both vowels.

Answer

14

A fair dice is rolled three times.
Find the probability that all three numbers are different.

Answer

15

A code is three digits, each from 1 to 9, and digits can repeat.
Find the probability that the code has at least one 1 in it.

Answer

16

Raj says the probability of at least one 6 in two rolls of a fair dice is $\frac{1}{6} + \frac{1}{6} = \frac{1}{3}$.
Explain his mistake and find the right probability.

Answer