Intellectual Club

Meeting 4

OUR AGENDA

Previous Session	We will go over some problems similar to those we saw in our previous meeting.
Homework	We will check our answers for the homework. Each person gets to answer one question.
New Tasks: The Monty Hall Problem	Time to brainstorm on the Monty Hall problem together!

Let's recap the previous session with similar problems!

RACE PODIUM

Eight runners compete in a race. How many different ways can the gold, silver, and bronze medals be awarded?

CREATING PASSWORDS

A website requires users to create a 4-letter password using distinct letters from the 26-letter English alphabet. How many different passwords can be created?

FORMING NUMBERS

These are the elements in the set {2, 3, 4, 5}. How many different 4-digit numbers can be formed using these elements if:

1)No digit may be repeated?

2)Any digit may be repeated?

3)No digit may be repeated and the number must be an odd one?

TRAVELING CITIES

Alice and Emma can travel from city A to city B by air, land, sea, or rail. What is the probability that they choose the same mode of transportation?

A BAG OF MARBLES

A bag contains 5 red, 4 blue, and 3 green marbles. You randomly draw three marbles one after another without replacement.
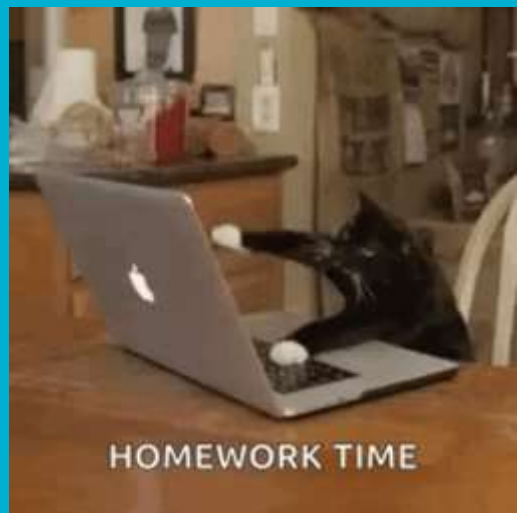
1) What is the probability that all three marbles are different colors?

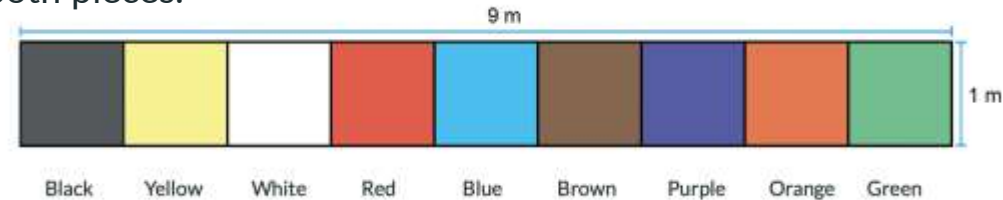2) What is the probability that at least two of them are the same color?

Moving on to the homework!

HOMEWORK TIME

Q1) THE CARPET

The front face of a rectangular carpet with dimensions 1 m by 9 m is painted in different colors as shown in the figure. The square regions covered by each color have equal areas.

The carpet will be cut into two pieces such that the same color does not appear in both pieces.

Accordingly, what is the probability that the painted area of one piece is twice the painted area of the other piece?

Q2) A BAG OF BALLS

Except for their colors, the balls are identical. Four of them are red, and the rest are white. All of these balls are distributed into three empty bags labeled A, B, and C. The probability of drawing a red ball at random from each bag is equal.

A   B   C

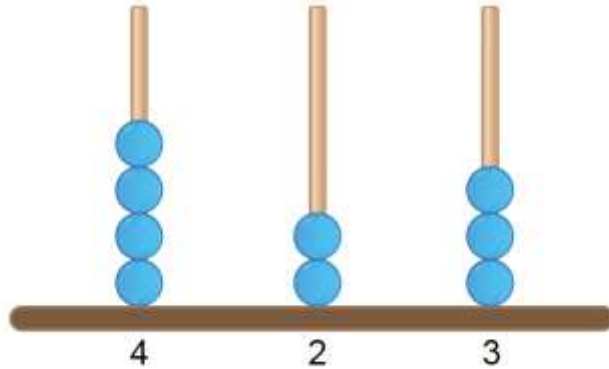Accordingly, which of the following cannot be the initial number of white balls?

A) 80   B) 83   C) 88   D) 92

Q3) THE ABACUS

The three-digit number 423 is modeled on the abacus given on the left.

One of the beads on this abacus is removed from its current rod and placed on another rod.

Based on this, what is the probability that the newly modeled number on the abacus will be greater than 500?

4   2   3

Q4) NUMBERS IN BAGS

The digits defined using the characters • (dot) and — (dash) are given in the table below.

1	• — — — —	6	— • • • •
2	• • — — —	7	— — • • •
3	• • • — —	8	— — — • •
4	• • • • —	9	— — — — •
5	• • • • •	0	— — — — —

All two-digit natural numbers formed with the characters corresponding to these digits are written on identical cards as shown below and placed in an empty bag. For example:

10 ⟶ | • — — — — — — — — — |

11 ⟶ | • — — — — • — — — — |

12 ⟶ | • — — — — • • — — — |

⋮
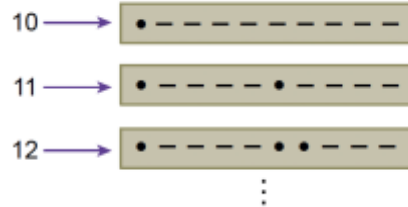
What is the probability of drawing a card with 5 dots (•) on it from this bag?

End of class – well done!

Thank you for your participation.

You will take your homework from the website. It will be uploaded on Monday. As always, please submit it at least three days before the next class.

Don't hesitate to send an email if you have any questions: **info@oxbridge.ru**