

Maths Jam

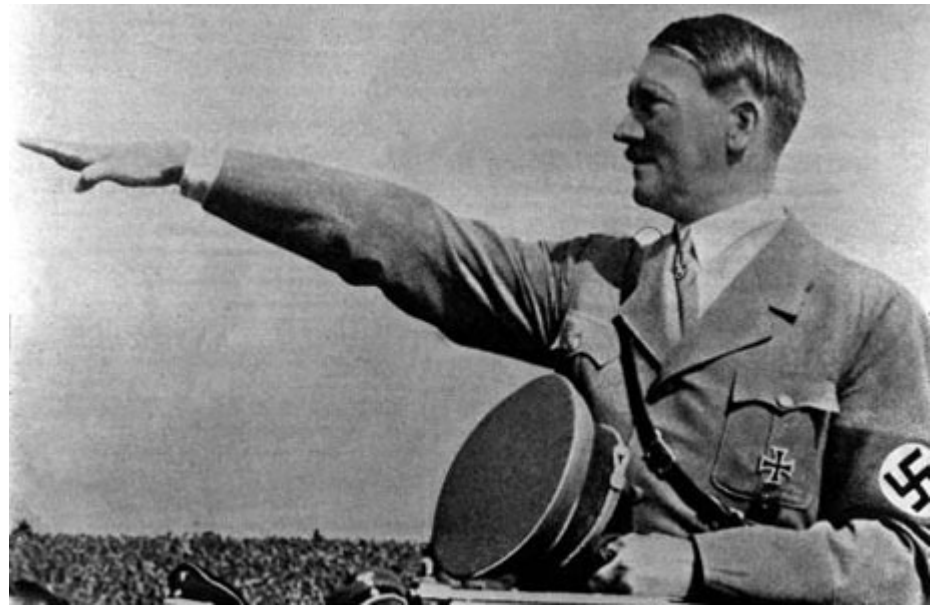
Maths questions to ask at an interview for a

....



So you want to be a Dictator ?

You will need to be able to control the population....



If you insist that all couples must have continue to have children until their first boy is born, and then they must stop.

What will be the resultant ratio of men to women after a long period of time ?



So you want to be a janitor?

You will need to know all of your buildings ins and outs including the highest floor from which you could drop an egg without it breaking.

What is the minimum number of trials it takes to find the maximum floor you can drop an egg from without it breaking from a 100 storey building. You have two eggs with which to find the solution. Once an egg breaks it cannot be re-used.

What if you were head janitor at the Burj Khalifa (209 floors)?

What about a building with n floors?

So you want to be an ice cream seller (or google programmer)?

You will need to know how many different ice creams you have for sale



A cone holds 3 scoops. how many different ice creams can be created if you have 5 flavours to choose from?

What about if a cone holds m scoops and there are n flavours to choose from?

So you want to be a a photographer?



You will need to know how many ways you can line
your subjects up to take a photo...



How many ways can you arrange a photograph of a team of eight players such that they are in two rows of 4, one behind the other. Heights must be descending right to left in both rows, and a taller person always stands behind.

What about 2 rows of n people?

So you want to be an explorer

What if there's a rickety bridge?



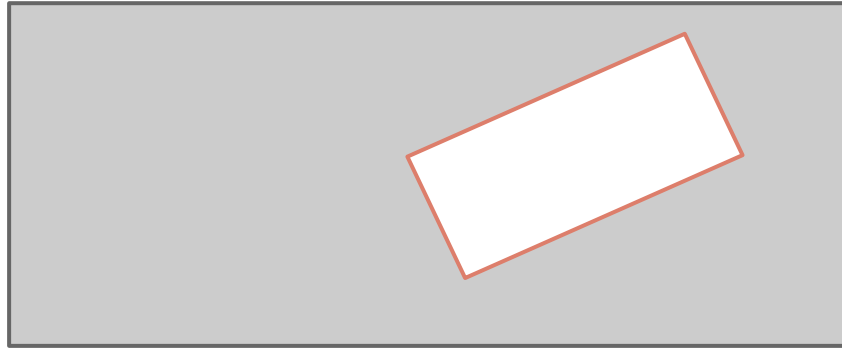
4 people have to cross a bridge. Their crossing times are 1, 2, 5, and 10 minutes. Only 2 people can go at the same time, as it's night time the torch must always be carried when crossing. What is the minimum time they can all cross the bridge in?

So you want to be a baker

Do you know how to fairly share a cake?



You have a rectangular cake with a rectangular hole, how with one slice can you cut the cake in half?



What other shapes does this work for ?

So you want to be a piano tuner?

Is there a gap in the market?



How many piano tuners are there in London?

How many people are playing golf now?

What % of the Earth's water is stored in a single cow?

So you want to be a prison guard?

Know any fun games to play with the inmates?



One hundred prisoners are put in a room. One by one they are led from the room to a room with 100 boxes. Each box contains one of their names inside. They are allowed to open half the boxes (50), and must find their name. If they fail - then all the prisoners die and if they ALL succeed then they all live.

The boxes will remain in same order between prisoners making their choices.

What occurs as number of prisoners increases?

So you want to be a Daka rally driver



You will need to be able to go the distance...

You have 3,000 1 litre cans of petrol in a stock pile.

Your rally car can carry a maximum of 1000 litres.

You use 1 litre for every km travelled. What is the greatest distance you can travel across the desert?