a)
A bus company has a large number of buses.
25% of the buses are more than 10 years old.

If a bus is more than 10 years old, the probability that it will start first time is 0.3.
If a bus is less than 10 years old, the probability that it will start first time is 0.65.

Amir is asked to drive one of the company's buses, chosen at random.

Calculate the probability that the bus starts first time.

What percentage of the buses are less than 10 years old?	100% - 25% = 75%
If you pick a bus at random, what's the probability that it is less than 10 years old AND starts first time?	$0.75 \times 0.65 = 0.4875$
If you pick a bus at random, what's the probability that it is more than 10 years old AND starts first time?	$0.25 \times 0.3 = 0.075$
What is the probability that a bus is less than 10 years old and starts first time OR a bus is more than 10 years old and starts first time?	$0.4875 + 0.075 = 0.5625$

b)
A gym has a large number of customers.
30% of customers are over 40 years old.

The probability that a customer over 40 years old visits the gym on a Sunday is 0.65.
The probability that a customer under 40 years old visits the gym on a Sunday is 0.45.

On Sunday, a customer is picked at random from their database.

Calculate the probability that the customer visits the gym.

What percentage of customers are less than 40 years old?	100% - 30% = 70%
If you pick a customer at random, what's the probability that they are under 40 years old AND visit the gym on a Sunday?	$0.7 \times 0.45 = 0.315$
If you pick a customer at random, what's the probability that they are over 40 years old AND visits the gym on a Sunday?	$0.3 \times 0.65 = 0.195$
What is the probability that a customer is under 40 years old and visits the gym on a Sunday OR a customer is over 40 years old and visits the gym on a Sunday?	

BACKWARD FADED MATHS

c)

A school has a large number of computers.
60% of the computers are more than 8 years old.

If a computer is more than 8 years old, the probability that it will login first time is 0.7.
If a computer is less than 8 years old, the probability that it will login first time is 0.92.

Sam is going to login to a computer.

Calculate the probability that the computer logs in first time.

What percentage of the computers are less than 8 years old?	100% - 60% = 40%
If you pick a computer at random, what's the probability that it is less than 8 years old AND logs in first time?	$0.4 \times 0.92 = 0.368$
If you pick a computer at random, what's the probability that it is more than 8 years old AND logs in time first time?	
What is the probability that a computer is less than 8 years old and logs in first time OR a computer is more than 8 years old and logs in first time?	

d)

An office has a large number of photocopiers.
35% of the photocopiers are more than 4 years old.

If a photocopier is more than 4 years old, the probability that it will jam is 0.6.
If a photocopier is less than 4 years old, the probability that it will jam is 0.15.

Chris is asked to make copies on a photocopier and they go to the first one.

Calculate the probability that the photocopier jams.