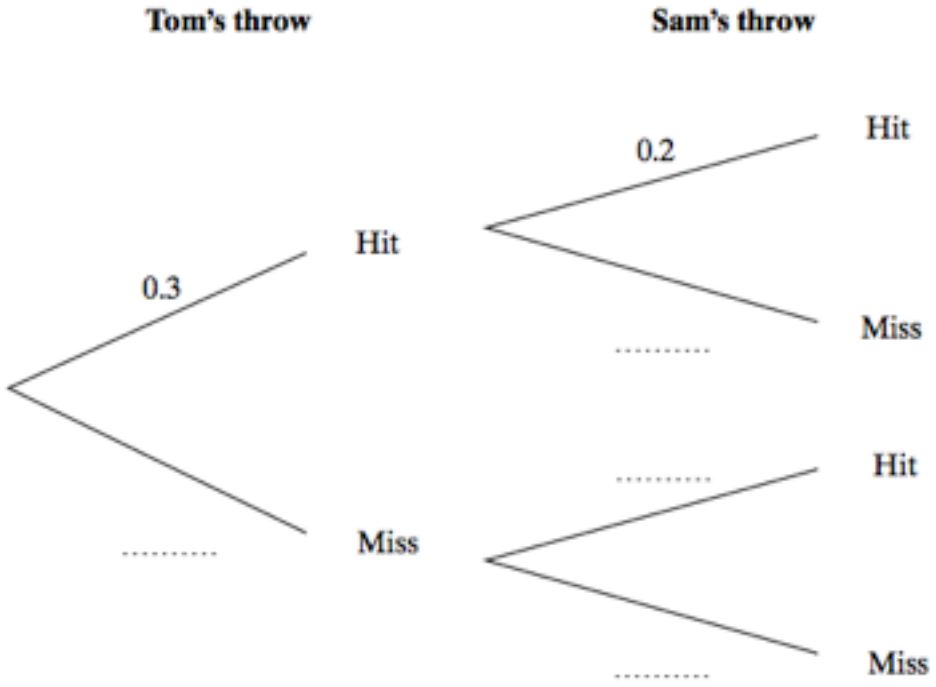
24 Tom and Sam take turns to throw a dart at a target.
The probability that Tom hits the target is 0.3
The probability that Sam hits the target is 0.2

(a) Complete the tree diagram.



(1 mark)

(b) What is the probability that Tom and Sam both hit the target?

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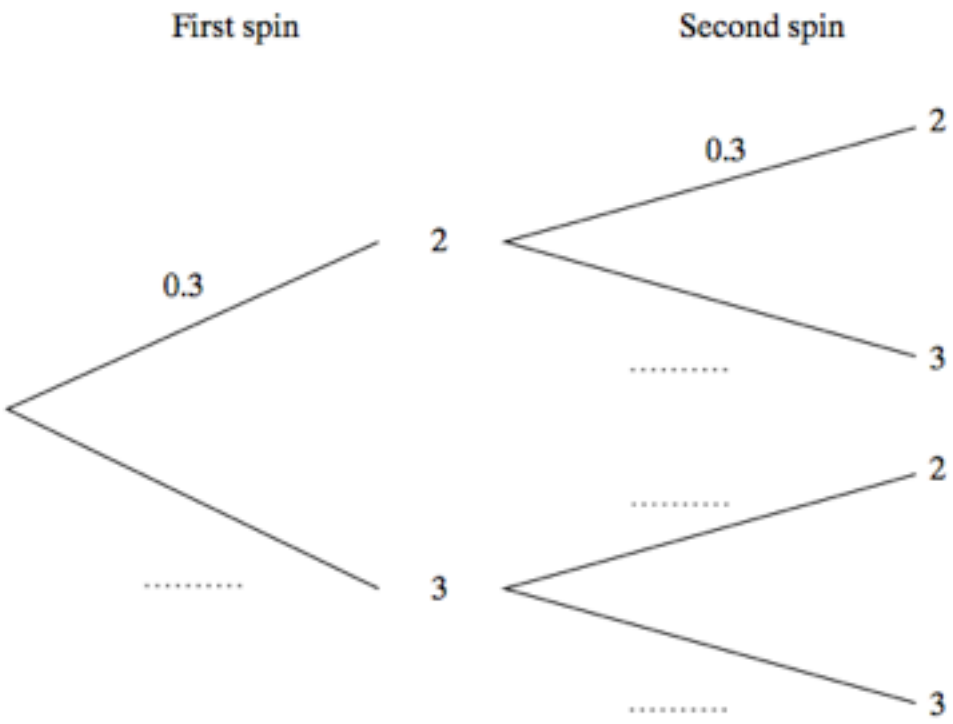
Answer ..... *(2 marks)*

When the arrow is spun the probability of scoring 2 is 0.3

The arrow is spun twice and the scores are added.

(a) Complete the tree diagram.



(1 mark)

(b) What is the probability that the total score is 4?

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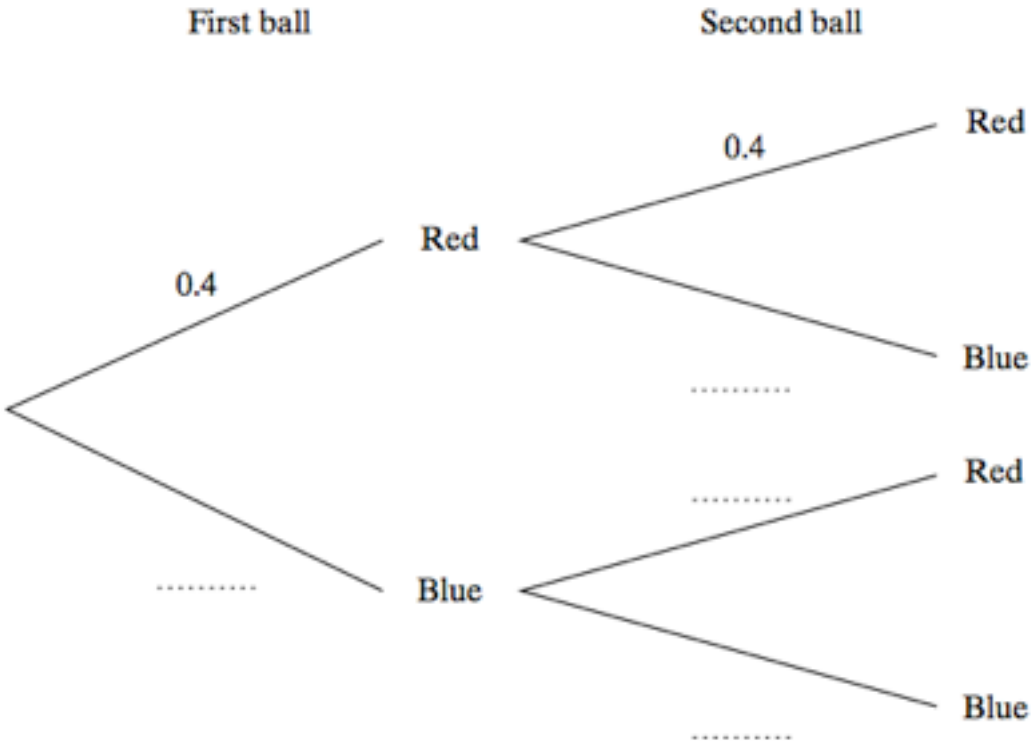
Answer ..... *(2 marks)*

A bag contains 4 red balls and 6 blue balls.
A ball is taken from the bag at random and replaced.
Another ball is then taken from the bag at random.

(a) Complete the tree diagram.



(1 mark)

(b) What is the probability that both balls are the same colour?

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Answer ..... *(3 marks)*

A bag contains 4 red, 3 yellow and 2 purple discs.
A disc is taken, at random, from the bag and is **not** replaced.
A second disc is then taken, at random, from the bag.

Calculate the probability that the two discs taken from the bag are

(a) both red,

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Answer ..... *(2 marks)*

(b) different colours.

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Answer ..... *(3 marks)*

In Britain the probability of a 17 year old passing the driving test at the first attempt is 0.6
Three people are chosen at random from the population of 17 year olds in Britain who are about to take their driving test.
What is the probability that exactly two of them pass the driving test at the first attempt?

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Answer ..... *(3 marks)*

Alesha travels to work by car, bus or train.
The table shows the probabilities.

Method of travel	Probability
Car	$\frac{1}{2}$
Bus	$\frac{3}{10}$
Train	$\frac{1}{5}$

If Alesha travels by car, the probability that she arrives on time is $\frac{9}{10}$

If she travels by bus, the probability that she arrives on time is $\frac{5}{6}$

If she travels by train, the probability that she arrives on time is $\frac{11}{12}$

Calculate the probability that Alesha does **not** arrive on time.

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Answer ..... *(4 marks)*

An examiner has to attend a meeting in Manchester.
The probabilities of dry weather (D), rain (R) or snow (S) are

$$\text{Probability (D)} = \frac{1}{2}$$
$$\text{Probability (R)} = \frac{1}{3}$$
$$\text{Probability (S)} = \frac{1}{6}$$

If it is dry the probability that he will arrive in time for the meeting is $\frac{4}{5}$

If it rains the probability that he will arrive in time for the meeting is $\frac{2}{5}$

If it snows the probability that he will arrive in time for the meeting is $\frac{1}{10}$

Calculate the probability that he is **late** for the meeting.

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Answer ..... *(4 marks)*