1   Items made at a factory have to pass two checks.
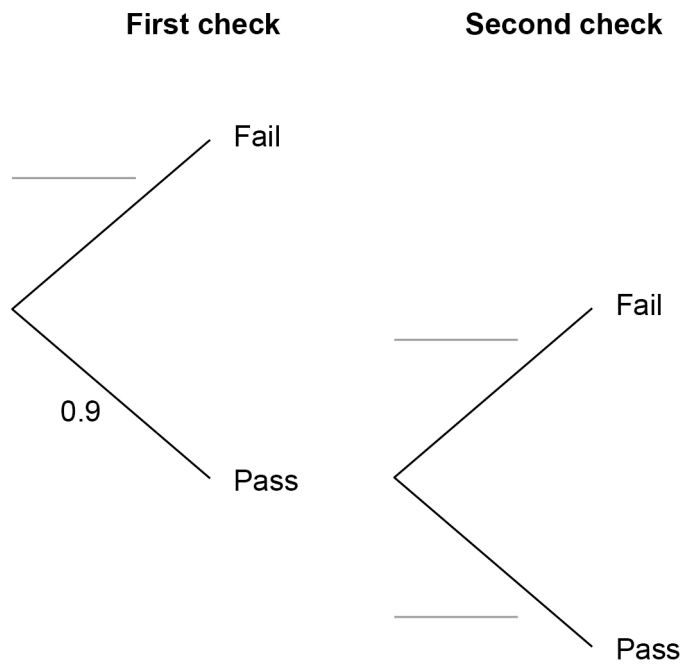
90% pass the first check.

The items that fail are scrapped.

99% of the items that pass the first check pass the second check.

The items that fail are scrapped.

1 (a)   Complete the tree diagram.

[2 marks]

First check   **Second check**

Fail

Fail

0.9

Pass

Pass

1 (b)   An item is chosen at random before the checks.

Work out the probability that the item is scrapped.
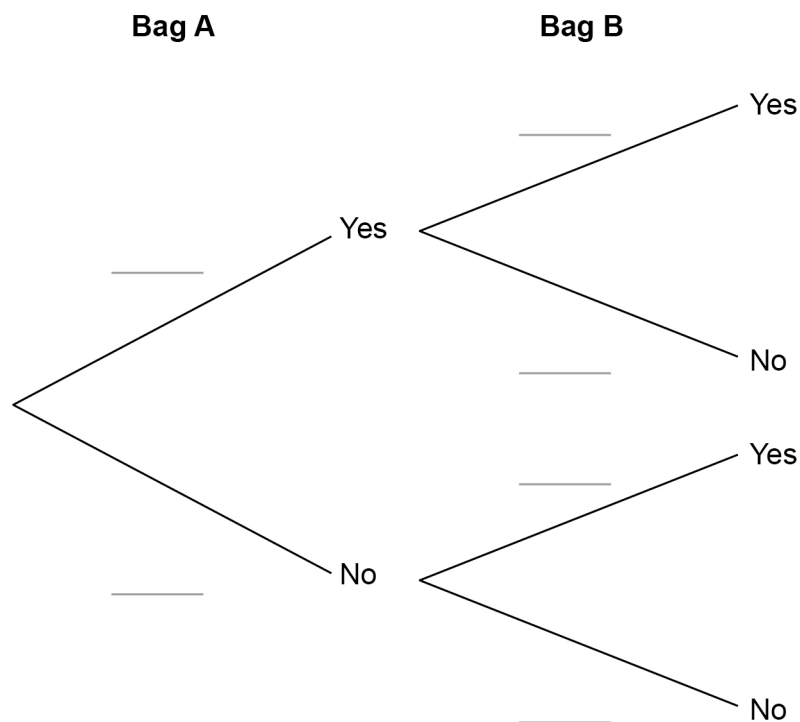
[3 marks]

Answer _____

2 In a game, two bags, A and B, contain cards.

Each card is marked Yes or No.

The table shows the number of each type of card in the bags.

	Yes	No
Bag A	3	2
Bag B	1	9

In the game, a player picks one card at random from each bag.

The cards are then put back into the bags.

2 (a) Complete the tree diagram.

[2 marks]

Bag A   **Bag B**
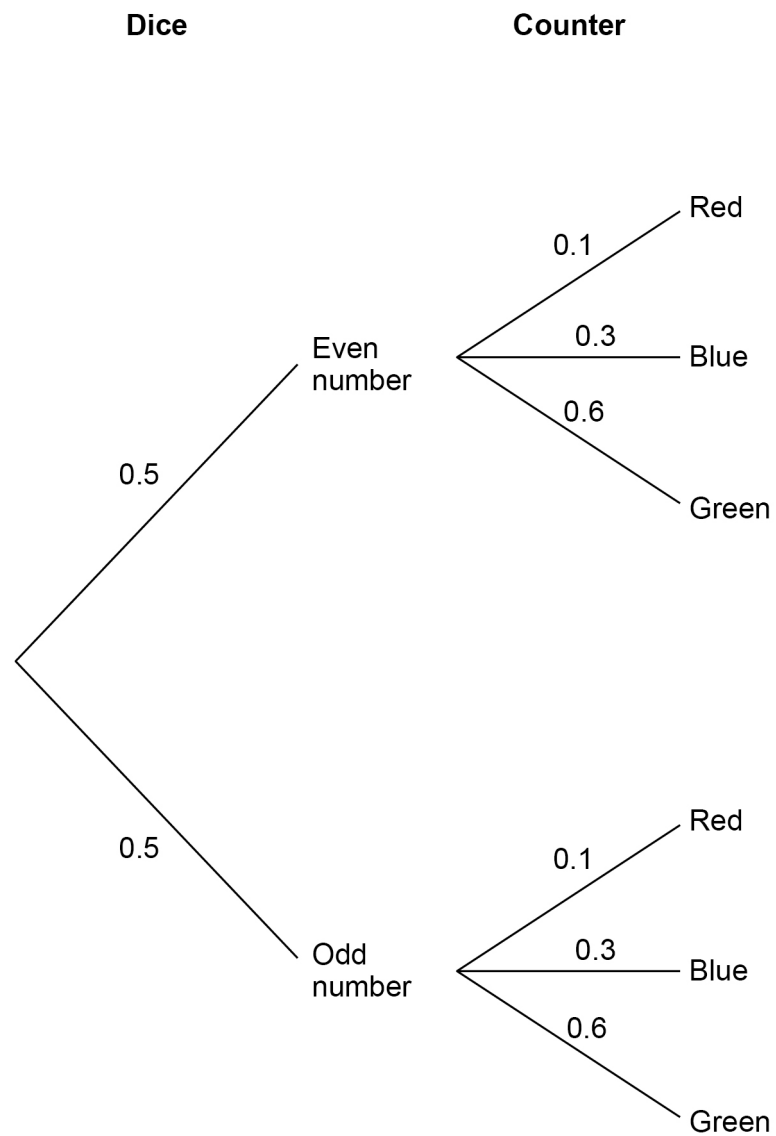
Yes

Yes

No

Yes

No

No

2 (b)   To win a prize, a player must pick two cards marked Yes.

450 people each play the game once.

How many people are expected to win a prize?

[3 marks]

Answer _____

3   A fair, ordinary dice is rolled and a counter is taken at random from a bag.

The tree diagram shows the probabilities.

Dice   **Counter**

3 (a) How do the probabilities show that **all** the counters in the bag are red, blue or green?

[1 mark]

_____

_____

_____

3 (b) Circle the probability that the counter is red **or** blue.

[1 mark]

0.0009   0.8   0.03   0.4

3 (c) Circle the probability that the dice lands on an even number **and** the counter is blue.
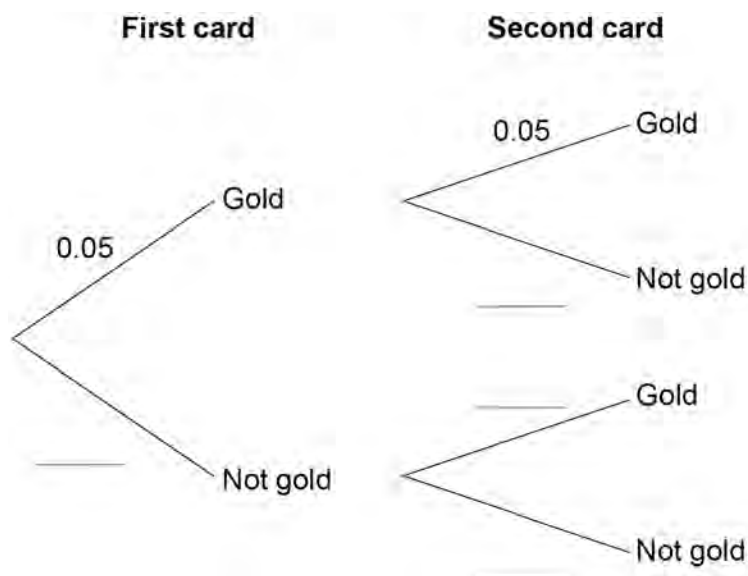
[1 mark]

0.15   0.3   0.35   0.8

4 Cards are either gold or not gold.

P(gold) = 0.05

Harim chooses a card at random and replaces it.

He then chooses a second card.

4 (a) Complete the tree diagram.

[2 marks]

First card　　　　　　**Second card**

```
                                    0.05      Gold
                         Gold   <
             0.05   /                         Not gold
                  /               _____
                /
              <
                \
                  \               _____      Gold
             _____   \                    <
                         Not gold   <
                                    _____    Not gold
```

4 (b) What is the probability that **at least one** of Harim's cards is gold?

[3 marks]

_____

_____

_____

_____

_____

Answer _____