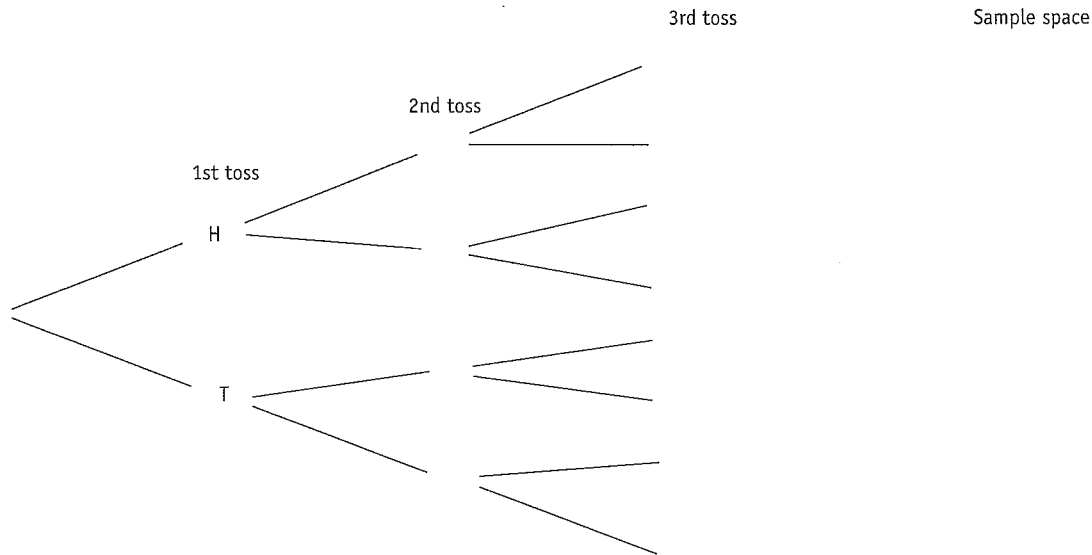




## Tree diagrams (1)

QUESTION 1 A coin is tossed three times.

a Complete the tree diagram.



b What is the probability of getting, (in any order):

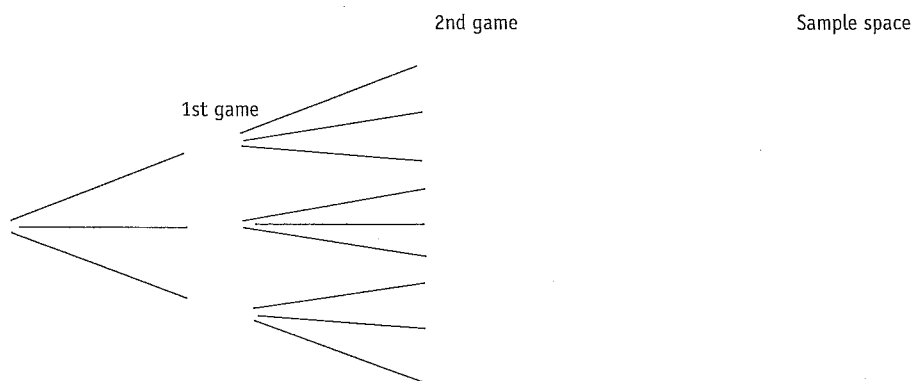
i 3 heads

ii 2 heads and a tail

iii at least two tails

QUESTION 2 When playing a particular game, there is an equal chance of winning, losing or drawing. If two games are played:

a complete the tree diagram



b What is the probability of:

i winning both games

ii one win and one loss

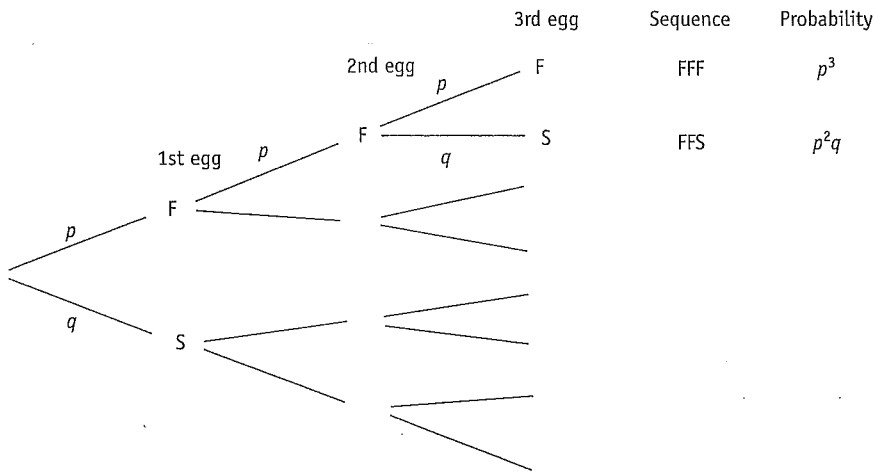
iii not losing a game

# Probability

## Tree diagrams (2)

**QUESTION 1** It is known that of all the eggs produced at a particular egg farm, 80% are first quality. The others are classed as seconds for various reasons. Three eggs are chosen at random. Let  $p$  be the probability that an egg is first quality and  $q$  be the probability that an egg is second quality.

a Complete the tree diagram.



b Write down the value, as a decimal, of: **i**  $p$  \_\_\_\_\_ and **ii**  $q$  \_\_\_\_\_

What is the probability that, if three eggs are chosen at random:

c all are first quality

d one is a second

e at most one is a second

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

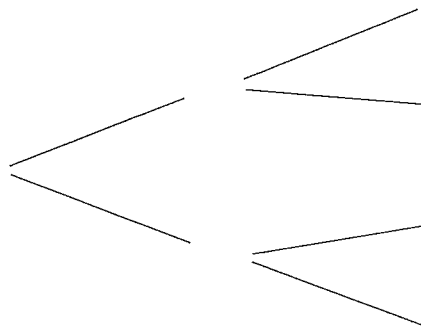
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**QUESTION 2** The failure rate for a particular exam is 4%. Two candidates are selected at random.

a Complete the tree diagram to show the chances of their success.



What is the probability that:

b both pass the test

c at least one passes the test

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

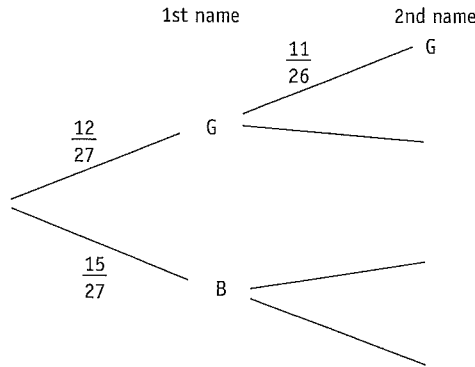
\_\_\_\_\_

# Probability

## Tree diagrams (3)

**QUESTION 1** A class at the local school has 12 girls and 15 boys. In order to choose two class representatives the name of each class member is written on a card and placed in a hat. The teacher chooses two names at random.

a Complete the probability tree diagram.



What is the probability that:

b the first name drawn is that of a girl

---



---

c both representatives are girls

---



---

d at least one representative is a girl

---



---

**QUESTION 2** Azeem buys 5 tickets in a raffle in which 100 tickets are sold and there are two prizes. One ticket is drawn for first prize, discarded and then a second ticket drawn for second prize.

a What is the probability that Azeem will win a prize?

---



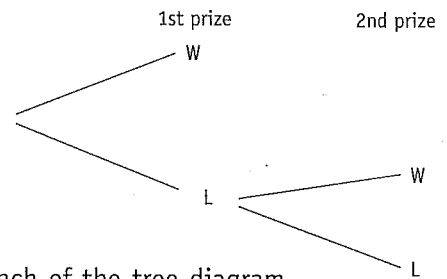
---



---



---



b Briefly explain why it is not necessary to complete the top branch of the tree diagram.

---

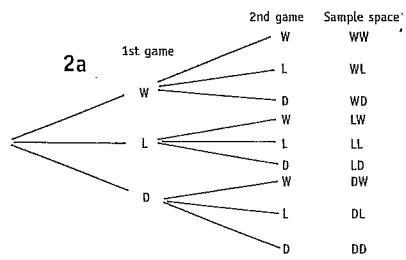
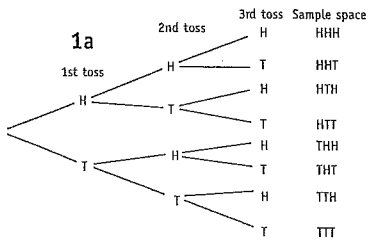


---

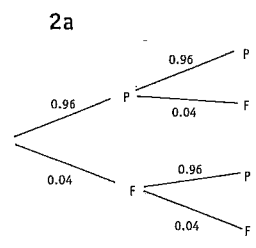
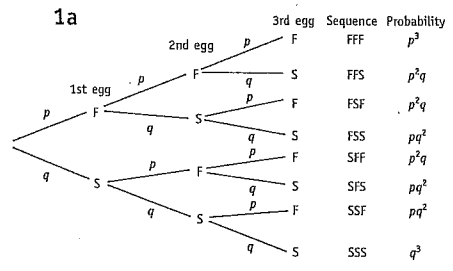


---

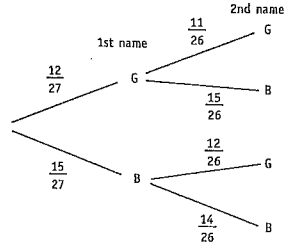
**Page 182** 1 a (below) b i  $\frac{1}{8}$  ii  $\frac{3}{8}$  iii  $\frac{1}{2}$  2 a (below) b i  $\frac{1}{9}$  ii  $\frac{2}{9}$  iii  $\frac{4}{9}$



**Page 183** 1 a (below) b i 0.8 ii 0.2 c 0.512 d 0.384 e 0.896 2 a (below) b 92.16% c 99.84%



**Page 184** 1 a



b  $\frac{4}{9}$  c  $\frac{22}{117}$  d  $\frac{82}{117}$  2 a  $\frac{97}{990}$  b. If Azeem wins first prize that satisfies the condition we require. It doesn't matter whether he wins or does not win second prize in this case.