

May 07 34

10. Here are five shapes.



Four of the shapes are squares and one of the shapes is a circle.  
One square is black.  
Three squares are white.  
The circle is black.  
The five shapes are put in a bag.

- (a) Jasmine takes a shape at random from the bag 150 times.  
She replaces the shape each time.

Work out an estimate for the number of times she will take a white square.

.....  
(3)

- (b) Alec takes a shape at random from the bag and does **not** replace it.  
Bashir then takes a shape at random from the bag.

Work out the probability that

- (i) they both take a square,

.....

- (ii) they take shapes of the same colour.

.....  
(5)

(Total 8 marks)

Q10



May 05 3H

19. The diagram shows six counters.



Each counter has a letter on it.

Bishen puts the six counters into a bag.

He takes a counter at random from the bag.

He records the letter which is on the counter and replaces the counter in the bag.

He then takes a second counter at random and records the letter which is on the counter.

(a) Calculate the probability that the first letter will be A and the second letter will be N.

.....  
(2)

(b) Calculate the probability that both letters will be the same.

.....  
(4)

(Total 6 marks)

Q19



May 07 4H

18. A fair, 6-sided dice has faces numbered 1, 2, 3, 4, 5 and 6  
When the dice is thrown, the number facing up is the score.  
The dice is thrown three times.

(a) Calculate the probability that the total score is 18

.....  
(2)

(b) Calculate the probability that the score on the third throw is exactly double the **total**  
of the scores on the first **two** throws.

.....  
(4)

(Total 6 marks)

Q18

20. A box contains 7 good apples and 3 bad apples.

Nov 04 3H

Nick takes two apples at random from the box, **without** replacement.

(a) (i) Calculate the probability that both of Nick's apples are bad.

.....

(ii) Calculate the probability that at least one of Nick's apples is good.

.....

(4)

Another box contains 8 good oranges and 4 bad oranges.

Crystal keeps taking oranges at random from the box one at a time, **without** replacement, until she gets a good orange.

(b) Calculate the probability that she takes exactly three oranges.

.....

(2)

Q20

(Total 6 marks)

21.  $\frac{1}{3}$  of the people in a club are men.

Nov 06 3H

The number of men in the club is  $n$ .

(a) Write down an expression, in terms of  $n$ , for the number of people in the club.

.....  
(1)

Two of the people in the club are chosen at random.

The probability that both these people are men is  $\frac{1}{10}$

(b) Calculate the number of people in the club.

.....  
(5)

(Total 6 marks)

Q21

Nov 07 3H

21. A coin is biased so that the probability that it shows heads on any one throw is  $p$ . The coin is thrown twice.

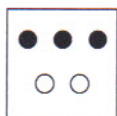
The probability that the coin shows heads exactly once is  $\frac{8}{25}$

Show that  $25p^2 - 25p + 4 = 0$

Q21

(Total 3 marks)

24.



Box A



Box B

Nov 07 4H

In Box A, there are 3 black counters and 2 white counters.  
In Box B, there are 2 black counters and 1 white counter.

Farah takes at random a counter from Box A and puts it in Box B.  
She then takes at random a counter from Box B.

Work out the probability that the counter she takes from Box B will be a black counter.

Q24

(Total 3 marks)