

Question 7

The random variable X has this probability distribution.

X	0	1	2	3	4
$\Pr(X = x)$	0.1	0.2	0.4	0.2	0.1

Find

a. $\Pr(X > 1 | X \leq 3)$

2 marks

b. $\text{Var}(X)$, the variance of X .

3 marks

TURN OVER

Question 5

Four identical balls are numbered 1, 2, 3 and 4 and put into a box. A ball is randomly drawn from the box, and not returned to the box. A second ball is then randomly drawn from the box.

- a. What is the probability that the first ball drawn is numbered 4 and the second ball drawn is numbered 1?

1 mark

- b. What is the probability that the sum of the numbers on the two balls is 5?

1 mark

- c. Given that the sum of the numbers on the two balls is 5, what is the probability that the second ball drawn is numbered 1?

2 marks

TURN OVER

Question 7

A biased coin is tossed three times. The probability of a head from a toss of this coin is p .

- a. Find, in terms of p , the probability of obtaining
- i. three heads from the three tosses

- ii. two heads and a tail from the three tosses.

1 + 1 = 2 marks

- b. If the probability of obtaining three heads equals the probability of obtaining two heads and a tail, find p .

2 marks