

1. March/2022/Paper_9709/52/No.1

A fair red spinner has edges numbered 1, 2, 2, 3. A fair blue spinner has edges numbered $-3, -2, -1, -1$. Each spinner is spun once and the number on the edge on which each spinner lands is noted. The random variable X denotes the sum of the resulting two numbers.

- (a) Draw up the probability distribution table for X . [3]

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- (b) Given that $E(X) = 0.25$, find the value of $\text{Var}(X)$. [2]

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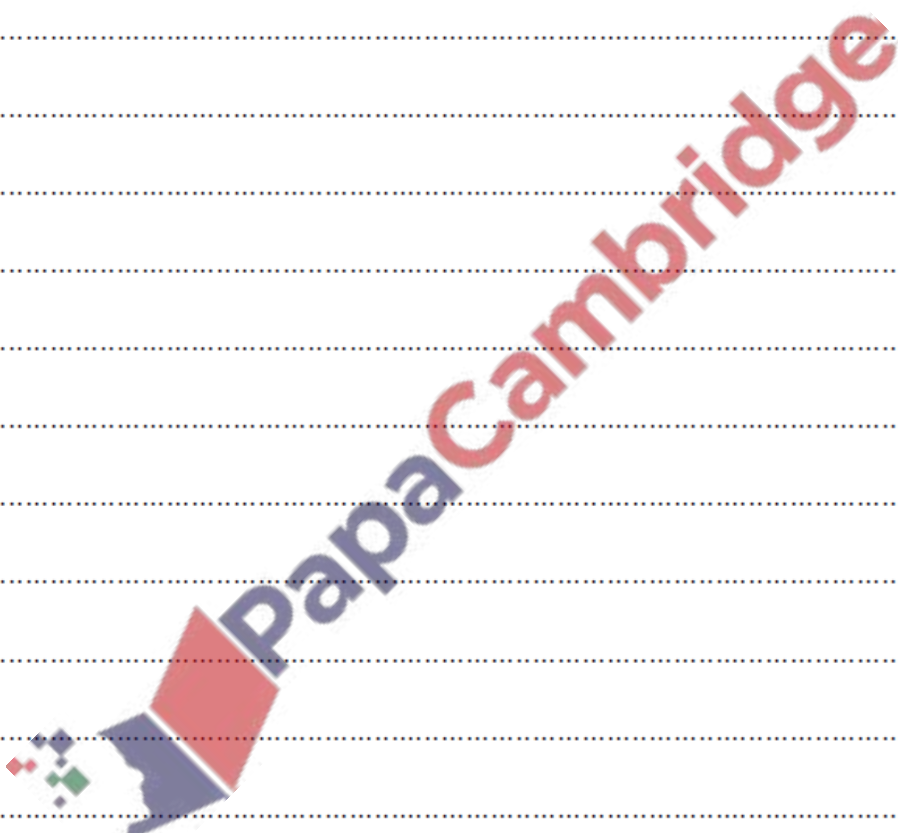
2. June/2022/Paper_9709/51/No.4

Jacob has four coins. One of the coins is biased such that when it is thrown the probability of obtaining a head is $\frac{7}{10}$. The other three coins are fair. Jacob throws all four coins once. The number of heads that he obtains is denoted by the random variable X . The probability distribution table for X is as follows.

x	0	1	2	3	4
$P(X = x)$	$\frac{3}{80}$	a	b	c	$\frac{7}{80}$

(a) Show that $a = \frac{1}{5}$ and find the values of b and c . [4]

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(b) Find $E(X)$. [1]

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For n values of the variable x , it is given that

$$\Sigma(x - 200) = 446 \quad \text{and} \quad \Sigma x = 6846.$$

Find the value of n .

[3]

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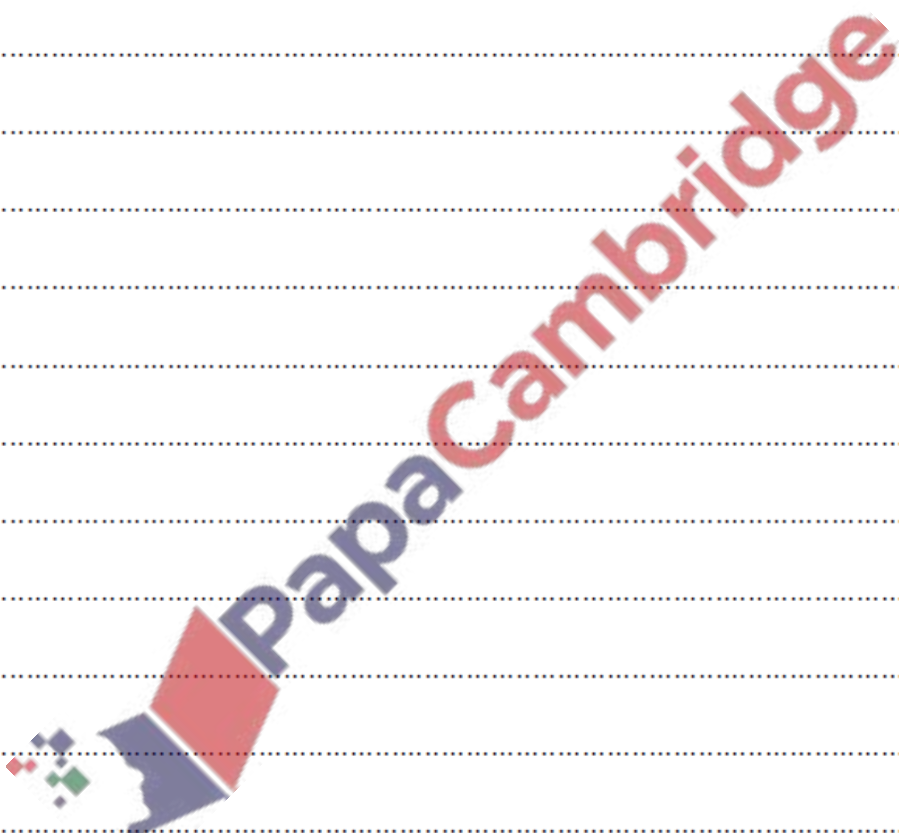
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4. June/2022/Paper_9709/52/No.2

A fair 6-sided die has the numbers 1, 2, 2, 3, 3, 3 on its faces. The die is rolled twice. The random variable X denotes the sum of the two numbers obtained.

(a) Draw up the probability distribution table for X . [3]

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(b) Find $E(X)$ and $\text{Var}(X)$. [3]

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5. June/2022/Paper_9709/53/No.3

The random variable X takes the values $-2, 1, 2, 3$. It is given that $P(X = x) = kx^2$, where k is a constant.

- (a) Draw up the probability distribution table for X , giving the probabilities as numerical fractions. [3]

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- (b) Find $E(X)$ and $\text{Var}(X)$. [3]

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