



Core Mathematics S1(GCE)

Practice Question 5

Standard A[★]

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**CRITICAL THINKING IS THE KEY TO SOLVE REAL WORLD PROBLEMS.
CHILDREN MUST BE TAUGHT HOW TO THINK, NOT WHAT TO THINK.
A GREAT TEACHER WILL BE CREATING STUDENTS TO DO NEW THINGS
THROUGH CRITICAL THINKING, NOT SIMPLY REPEATING WHAT OTHER
GENERATIONS HAVE DONE BEFORE. WE DO NOT NEED ANOTHER
ALBERT EINSTEIN OR ISAAC NEWTON.... WE NEED A PERSON BETTER
THAN THEM.**

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Question:

X	1	2	3	4	5	6
$P(X = x)$	d	k	$2d$	$2d$	k	d

(a) Find $E(X + 5)$ to 1 decimal place.

(1 mark)

(b) Calculate $Var(X + 5)$ to 2 decimal places.

(5 marks)

(c) Six jam tins, of which two are defective and four are good, are to be tested one after another in random order until both defective jam tins are *identified*. The random variable X represents the number of jam tins that are tested to *identify* both defectives.

X	2	3	4	5
$P(X = x)$	$\frac{1}{15}$	p	q	r

(i) Find the value of p

(3 marks)

(ii) Find the value of q

(5 marks)

Golden Rules

- $\sum P(X = x) = 1$
- Expectation (mean): $E(X) = \mu = \sum x P(X = x)$
- Variance: $\text{Var}(X) = \sigma^2 = E(X^2) - \mu^2$
- $E(aX \pm b) = aE(X) \pm b$
- $\text{Var}(aX \pm b) = a^2 \text{Var}(X)$

For the answers please contact:

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Traditional or Online classes

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