



Core Mathematics S2(GCE)

Practice Question 9

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:

The continuous random variable X has the following probability density function.

$$f(x) = \begin{cases} 2kx & 0 \leq x \leq 3p \\ 0 & \text{Otherwise} \end{cases}$$

Where k and p are positive constants.

- (a) Given that 25th percentile is 5, find the value of k . (3 marks)
- (b) Hence or otherwise find the exact value of p . (3 marks)
- (c) Find the cumulative distribution function $F(x)$. (4 marks)
- (d) Sketch the graph of $F(x)$. (3 marks)
- (e) If $P(X \leq a) = 8P(X \geq a)$ then find the exact value of a . (4 marks)

For the answers please contact:

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Traditional or Online classes

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