

MATHEMATICS ASSIGNMENTS.

1. Given that $f(x) = \frac{1}{2}x^2e^{x+1}$

- a. Find the domain of $f(x)$ (1marks)
- b. Find relative asymptotes (if any) (4marks)
- c. Study the first and second derivative with variation table, (8marks)
- d. Sketch the curve of $f(x)$. (2marks)

2. Given the function f of real variable x defined by: $f(x) = \frac{3x^2}{3x^2-27}$

- a) Determine the domain of definition of $f(x)$ (2 marks)
- b) Calculate the limits at the boundaries of the domain. (3 marks)
- c) State any asymptotes. (2 marks)
- d) Make the variation table. (3 marks)
- e) Find the x -intercepts and y -intercepts for the graph of $f(x)$. (2 marks)
- f) Sketch the graph of $f(x)$ in a Cartesian plane. (3 marks)

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