Assignment 2

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Download all python codes from

https://github.com/Adarsh541/AI1103−prob−and−ranvar/blob/main/Assignment4/codes/Assignment4.py

and latex-tikz codes from

https://github.com/Adarsh541/AI1103−prob−and−ranvar/blob/main/Assignment4/Assignment4.tex

1 Problem(GATE 2016(MA) Q30)

Let X be a random variable with the following cumulative distribution function:

$$F(x) = \begin{cases} 0 & x < 0 \\ x^2 & 0 \le x < \frac{1}{2} \\ \frac{3}{4} & \frac{1}{2} \le x < 1 \\ 1 & x \ge 1 \end{cases} \tag{1.0.1}$$

Then $P\left(\frac{1}{4} < X < 1\right)$ is equal to

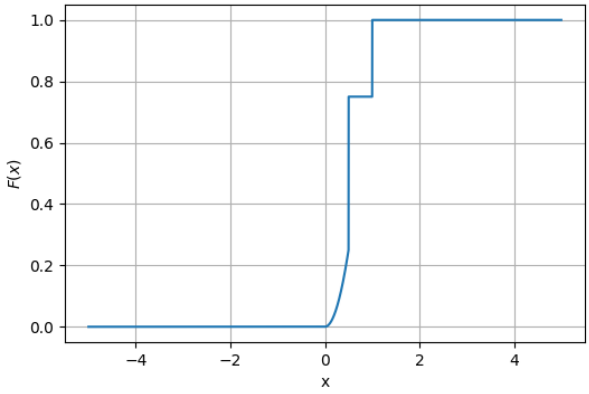

Fig. 0: The CDF of X

2 Solution(GATE 2016(MA) Q30)

$$P\left(\frac{1}{4} < X < 1\right) = F\left(1^-\right) - F\left(\frac{1}{4}\right) \tag{2.0.1}$$

$$= \frac{3}{4} - \left(\frac{1}{4}\right)^2 \tag{2.0.2}$$

$$= \frac{11}{16} \tag{2.0.3}$$