

Prabhat Kumar College, Contai

Department of Mathematics

2nd Year Mathematics (General) Annual Pattern

Paper: 3

Time: 1 hours

Answer any one :-

1. Prove that in E^2 , the set $X = \{(x, y): x^2 + y^2 \leq 4\}$ is a convex set.

2. Prove that $\frac{1}{\Delta^2 - 3\Delta + 2} x^2 = \frac{1}{2}(x^2 + 3x + 5)$.

3. A certain function defined on $0 \leq x \leq 1$ is such that $f(0) = 0, f\left(\frac{1}{2}\right) = -1$ and $f(1) = 0$. Find the quadratic polynomial $\phi(x)$ which agrees with $f(x) = 0, \frac{1}{2}$ and 1.