Answer any one   :-

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

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

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