

1. Let R be the set of all real numbers. Using the fact that every cubic equation with real coefficients has at least one real root, show that $x \rightarrow (x^3 - x)$ defines a mapping of R onto R . Also check whether this mapping is one-one or not .
2. Prove that cyclic group must be an abelian group.
3. Find the edge connectivity of the complete graph with n vertices.
4. How many squares are there in a chess board? Explain your answer.