1. Prove that a quadratic equation of one unknown quantity can not have more than two roots.

2. Find the meaning of $a^{-b}$, $b$ being integral or fractional.

3. Derive the formula for finding the sum of an infinite series whose ratio is less than 1. Illustrate its use by finding the value of the repetend .

4. Expand $\sqrt{1 - 3x}$ into a series to three terms by the method of undetermined coefficients.

5. Find by the differential method the 12th term of the series

6. Find all the roots of the equation

$$x^4 - 9x^3 + 29x^2 - 39x + 18 = 0.$$