

Roots of Polynomial Equations - Exercises

(2 pages; 15/2/17)

(1) If the quadratic equation $2x^2 + 5x - 9 = 0$ has roots α and β , find the quadratic equation which has roots $\frac{1}{\alpha}$ and $\frac{1}{\beta}$

(2) If the roots of the equation $x^2 + x - 13 = 0$ are α & β , find the equation with roots $2\alpha + 3\beta$ & $3\alpha + 2\beta$

(3) If the roots of the equation $x^3 - 14x^2 + 56x - 64 = 0$ are α , β & γ , find the equation with roots $\frac{1}{\alpha}$, $\frac{1}{\beta}$ & $\frac{1}{\gamma}$

(4) Find the roots of the equation $x^3 - 14x^2 + 56x - 64 = 0$, given that they form a geometric progression.

(5) If the roots of the equation $x^5 + bx^4 + cx^3 + dx^2 + ex + f = 0$ are 5 consecutive positive integers, find expressions for these roots.

(6) If α , β and γ are the roots of the equation

$$x^3 - 14x^2 + 56x - 64 = 0,$$

find the equation with roots $\alpha\beta$, $\alpha\gamma$ and $\beta\gamma$.

(7) If α , β and γ are the roots of the equation

$$x^3 - 2x^2 - 4x + 5 = 0,$$

find the equation with roots $\alpha + \beta\gamma$, $\beta + \alpha\gamma$ and $\gamma + \alpha\beta$.