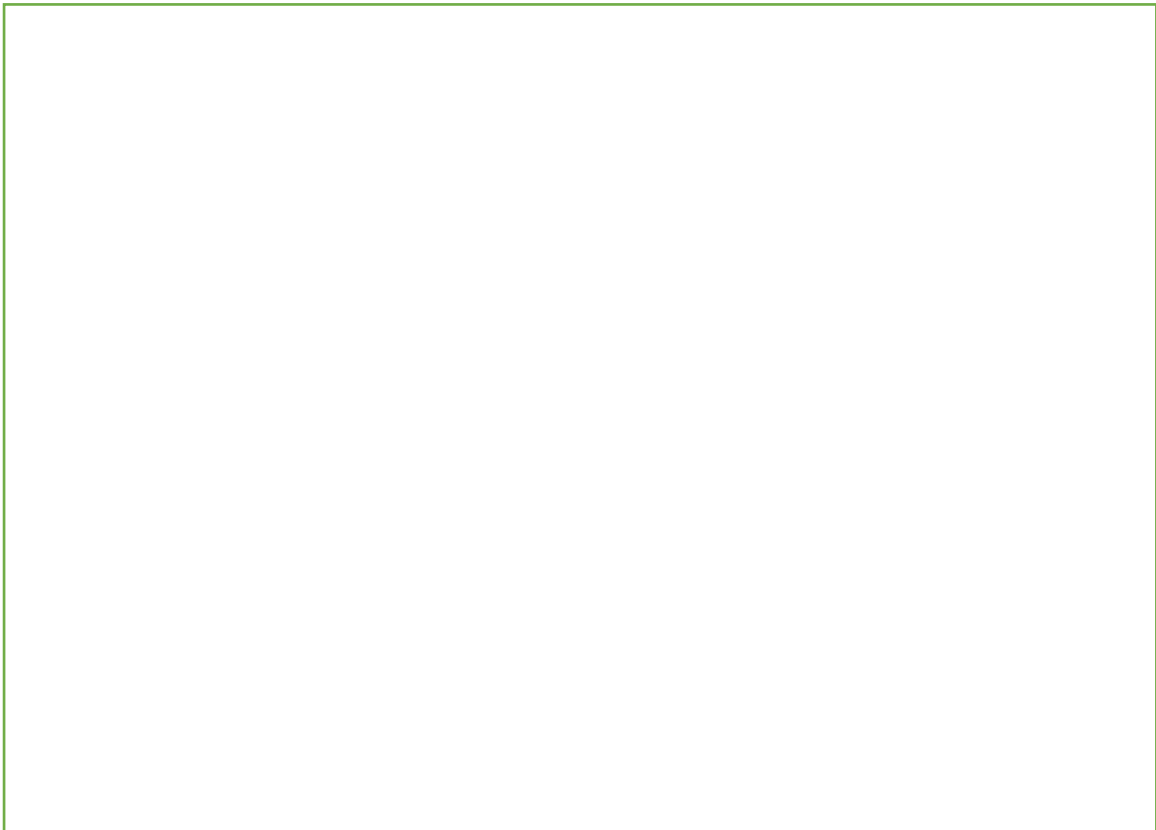


Roots of Polynomials



Roots of Quadratics



Example:

Find the quadratic equation with roots $\alpha = 2 + 4i$ and $\beta = 2 - 4i$ in the form $x^2 + ax + b = 0$

(2 Methods)

[Textbook] Given that $\alpha = 7 + 2i$ is one of the roots of a quadratic equation with real coefficients,

(a) state the value of the other root, β .

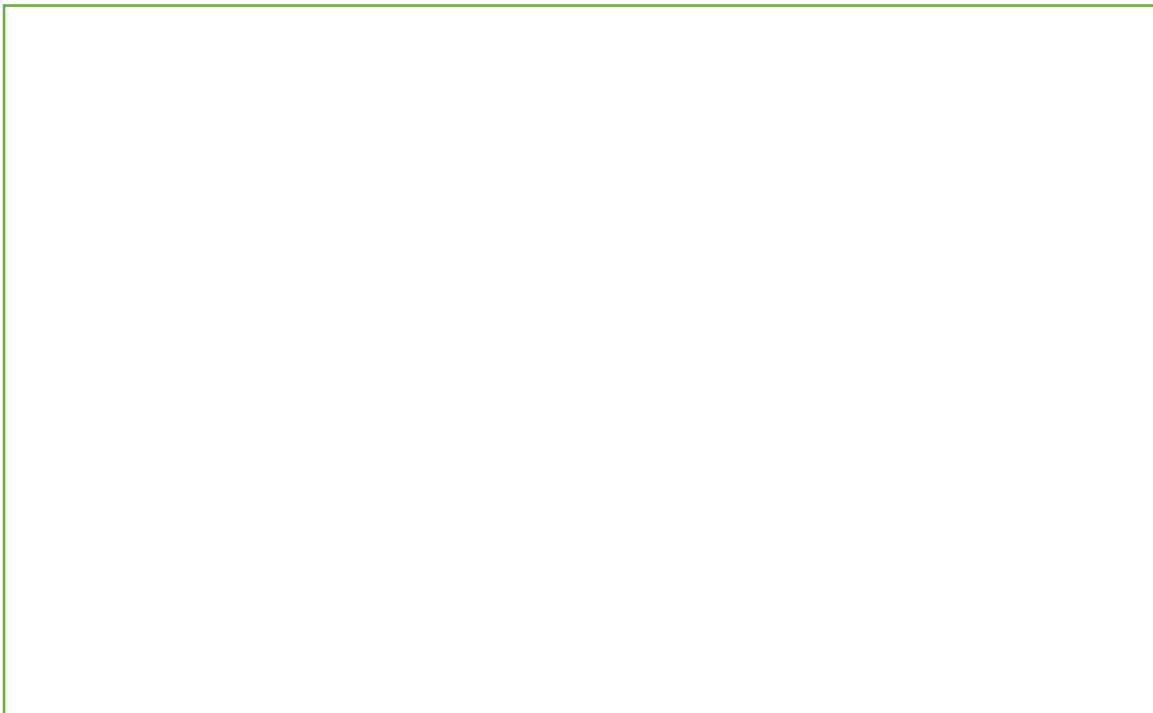
(b) find the quadratic equation.

Proof that Complex Roots Appear in Complex Pairs

Proof 1



Proof 2



Test Your Understanding

Given that $2 - 4i$ is a root of the equation

$$z^2 + pz + q = 0,$$

where p and q are real constants,

(a) write down the other root of the equation,

(1)

(b) find the value of p and the value of q .

(3)