3.3: Higher-Order Linear, Homogeneous Equations with Constant Coefficients
Combinations of Roots

Exercise 1. Find the general solution to the 5th-order linear, homogeneous equation whose characteristic equation is given by

$$(r^2 + 4)^2(r^2 - 4r + 5)r^3 = 0.$$

Exercise 2. Find the general solution to the 11th-order linear homogeneous equation whose characteristic equation has roots $3, -5, 0, 0, 0, 0, -5, 2 \pm 3i$ and $2 \pm 3i$.