

# Roots of Polynomials

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Wahoo!

1. The Certain Rabbit wants to create a quintic equation with roots 1, 2, 3, 4, and 5. Help him!
2. Given that the roots follow an arithmetic distribution, solve  $x^4 - 2x^3 - 21x^2 + 22x + 40 = 0$ .
3. Given that one root is twice the other, solve  $[x^3 \quad -4x^2 \quad -11x \quad -14i] \begin{bmatrix} 1 \\ 5 \\ -7 \\ -7i \end{bmatrix} = [0]$
4. (a) Construct a duodecic equation with roots the first 12 terms of the fibonacci sequence.  
(b) Given that the equation from part (i) is  $f(x)$ , find  $\frac{d^9 f}{dx^9}$

