

The deadline for all homework assignments is the one specified in Archie before 11:59 pm. As discussed in class, It must be correctly uploaded in order to be graded. Show all your work and justifications.

For Exercises 39–44, a polynomial $f(x)$ and one or more of its zeros is given.

a. Find all the zeros.

b. Factor $f(x)$ as a product of linear factors.

c. Solve the equation $f(x) = 0$.

39. $f(x) = x^4 - 4x^3 + 22x^2 + 28x - 203$; $2 - 5i$ is a zero

41. $f(x) = 3x^3 - 28x^2 + 83x - 68$; $4 + i$ is a zero

43. $f(x) = 4x^5 + 37x^4 + 117x^3 + 87x^2 - 193x - 52$;
 $-3 + 2i$ and $-\frac{1}{4}$ are zeros

40. $f(x) = x^4 - 6x^3 + 5x^2 + 30x - 50$; $3 - i$ is a zero

42. $f(x) = 5x^3 - 54x^2 + 170x - 104$; $5 + i$ is a zero

44. $f(x) = 2x^5 - 5x^4 - 4x^3 - 22x^2 + 50x + 75$;
 $-1 - 2i$ and $\frac{5}{2}$ are zeros