

Math 1210 Tutorial #4 (Oct. 6 – Oct. 12)

1. If $-2 + 3i$ is a zero of the polynomial $x^4 + 2x^3 + 10x^2 - 6x + 65$, find its other zeroes.
2. Find the value(s) of k so that $4k$ is the remainder when $x^3 + k^2x^2 - 4x + 1$ is divided by $x + 2$.
3. Find the value(s) of k and h in order that both $x + 1$ and $x - 3$ be factors of the polynomial $x^4 + kx^3 + hx^2 - 16x - 24$.
4. For the polynomial $2x^5 - 5x^4 - 8x^3 - 6x^2 + 6x + 5$:
 - (a) use Descartes' rules of signs to state the number of possible positive and negative zeros of the polynomial;
 - (b) use the bounds theorem to find bounds for zeros of the polynomial;
 - (c) use the rational roots theorem to list all possible rational zeroes of the polynomial, taking into account the results of (a) and (b).
5. Find all solutions of the equation $x^3 - 7x^2 + 17x - 14 = 0$ given that it has a solution which is an integer.