**A polynomial f(x) with real coefficients and leading coefficient 1 has the given zero(s) and degree. Express f(x) as a product of linear and quadratic polynomials with real coefficients that are irreducible over R.**

1. 3+2i; degree 2 2. 2, -2-5i; degree 3 3. -1, 0, 3+i; degree 4

4. 4+3i, -2+i; degree 4 5. 0, -2i, 1-i; degree 5

**Show that the equation has no rational root.**

6. x3 + 3x2 - 4x + 6 = 0 7. x5 - 3x3 + 4x2 + x - 2 = 0

 

**Find all solutions of the equation.**

8. x3 - x2 - 10x - 8 = 0 9. 2x3 - 3x2 - 17x + 30 = 0 10. 6x5 + 19x4 + x3 - 6x2 = 0

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Find a factored form with integer coefficients of the polynomial.

11. f(x) = 6x5 - 23x4 + 24x3 + x2 -12x + 4 = 0



12. The polynomial function f(x) = 2x3 - 25.4x2 + 3.02x + 24.75 has only real zeros. Use the graph of f to factor it.



13. Does there exist a polynomial of degree 3 with real coefficients that has zeros 1, -1, and i? Justify.

**Use a graph to determine the number of non real solutions of the equation.**

14. x5 + 1.1x4 - 3.21x3 - 2.835x2 + 2.7x + .62 = -1



15. x4 - .4x3 - 2.6x2 + 1.1x + 3.5 = 2

