

Lesson #12 B: Understanding and Solving Polynomial Equations and Finding the Roots of Polynomials
(Reference: Lesson #66, #76 & #85 in book)**Problem**

1. Determine the zeros or root of each of the following polynomial functions. Express all of the real roots in your final answer and rewrite the function as a fully factored function.

1. $f(x) = x^3 - x^2 - 12x$

2. $f(x) = 18x^3 - 18x$

3. $f(x) = 2x^3 - 32x^2 + 128x$

4. $f(x) = x^3 - 5x^2 - x + 5$

5. $f(x) = x^3 - 2x^2 - 11x + 12$

6. $f(x) = x^4 - x^3 + x^2 - 3x - 6$

7. $f(x) = x^3 + 2x^2 - 45x - 18$

8. $f(x) = 2x^4 - 14x^3 + 26x^2 - 30x$

9. $f(x) = (x - 12)(4x^2 + 3) - (x - 12)(7x - 2)$

10. $f(x) = 2x^4 + 6x^3 - 28x^2 - 40x$

11. $f(x) = -4x^4 + 6x^3 + 3x^2 - 7x$

12. $f(x) = x^3 - 8$

13. $f(x) = x^9 - 512$

14. $f(x) = x^4 - 2x^3 - 27x + 54$