

Part One: Write each expression as a polynomial in standard form.

1. $4x(x + 3)(x - 2)$

2. $(2x - 3)^2(x - 1)$

3. $x^2(x - 1)(x + 1)$

4. $x(4x + 5)^2$

Part Two: Write each polynomial in factored form.

5. $x^3 - 36x$

6. $18x^3 + 39x^2 - 15x$

7. $4x^5 + 28x^4 + 40x^3$

8. $2x^4 - 5x^3 - 12x^2$

Part Three: Write a polynomial in standard form with the given zeros.

9. $x = \frac{2}{3}, -1, -2, 0$

10. $x = -3$ with a multiplicity of two and $x = \frac{1}{4}$

Part Four: Find the zeros of each function. Then sketch a graph of the function.

11. $y = (2x - 1)(x + 4)$

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

13. $y = 5x(x - 2)^2(4x - 3)$

14. $y = -4(2x + 3)(x + 4)^2$