

2.1 Finding Zeros of Polynomial Functions

Period _____

Find all zeros by factoring. (Show all work)

1) $f(x) = 3x^2 - 17x + 20$

2) $f(x) = 5x^2 - 7x + 2$

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

4) $f(x) = 3x^2 + 10x + 8$

5) $f(x) = 3x^3 + 4x^2 - 15x$

6) $f(x) = 2x^3 - 7x^2 - 15x$

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

8) $f(x) = 4x^2 - 9$

9) $f(x) = x^4 - 4$

10) $f(x) = 9x^4 - 25$

Use a graphing calculator to find all of the zeros of each polynomial. (Round to 2 decimal places)

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

12) $f(x) = x^3 - 5x^2 - 9x + 45$

13) $f(x) = x^5 - x^4 - 39x^3 - 47x^2 + 158x + 168$

14) $f(x) = 24x^4 - 10x^3 - 75x^2 - 5x + 6$

Find a function of minimum degree with the given zeros.

15) $x = -7, 3, -3$

16) $x = 6, -5$

17) $x = 0, 2, -4$

18) $x = 2, -1, 3, 0$

Find a polynomial of degree 3 with real coefficients that satisfies the given conditions. (19 and 20 HONORS ONLY)

19) Zeros: $-3, -1, 4$; $f(2) = 10$

20) Zeros: $-2, 1, 0$; $f(2) = 24$

Factor each completely.

21) $3 + 81x^3$

22) $18p^2 - 24p + 8$

23) $125k^2 - 80$

24) $20x^2 + 38x + 12$

Simplify each expression.

25) $(3r - 6r^3 - 7r^2) + (?) = -2r^3 - 13r^2 + 10r + 6$