

MAC1140 Pre Calculus Algebra
 3.4 Zeros of Polynomial Functions. Practice 04.

Use the Rational Zero Theorem to list all possible rational zeros for the given function.

1) $f(x) = x^5 - 3x^2 + 4x + 7$ 1) _____
 A) $\pm 7, \pm \frac{1}{7}$ B) $\pm \frac{1}{3}, \pm \frac{7}{3}, \pm 7$ C) $\pm 1, \pm \frac{1}{7}$ D) $\pm 1, \pm 7$

2) $f(x) = x^5 - 2x^2 + 3x + 15$ 2) _____
 A) $\pm 1, \pm \frac{1}{5}, \pm \frac{1}{3}, \pm \frac{1}{15}, \pm 5, \pm 3, \pm 15$ B) $\pm 1, \pm \frac{1}{5}, \pm \frac{1}{3}, \pm \frac{1}{15}$
 C) $\pm 1, \pm 5, \pm 3$ D) $\pm 1, \pm 5, \pm 3, \pm 15$

Find a rational zero of the polynomial function and use it to find all the zeros of the function. Hint: $x = -1$ is a zero.

3) $f(x) = x^3 + 2x^2 - 5x - 6$ 3) _____
 A) $\{-3, -1\}$ B) $\{-3, -1, 2\}$ C) $\{-2, -1, 3\}$ D) $\{-1\}$

Solve the polynomial equation. Hint: $x = 2$ is a zero.

4) $x^3 + 2x^2 - 5x - 6 = 0$ 4) _____
 A) $\{-3, 2\}$ B) $\{-3, -1, 2\}$ C) $\{-2, 1, 3\}$ D) $\{-1, 2\}$

Find an nth degree polynomial function with real coefficients satisfying the given conditions.

5) $n = 3$; -1 and $3 + 2i$ are zeros; leading coefficient is 1 5) _____
 A) $f(x) = x^3 - 4x^2 + 7x + 13$ B) $f(x) = x^3 + 5x^2 + 7x - 14$
 C) $f(x) = x^3 - 5x^2 + 7x + 13$ D) $f(x) = x^3 - 5x^2 + 15x + 13$

6) $n = 3$; 3 and i are zeros; $f(2) = 30$ 6) _____
 A) $f(x) = 6x^3 - 18x^2 + 6x - 18$ B) $f(x) = -6x^3 + 18x^2 - 6x + 18$
 C) $f(x) = 6x^3 - 18x^2 - 6x + 18$ D) $f(x) = -6x^3 + 18x^2 + 6x - 18$

Use Descartes's Rule of Signs to determine the possible number of positive and negative real zeros for the given function.

7) $f(x) = -7x^9 + x^7 - x^2 + 3$ 7) _____
 A) 2 or 0 positive zeros, 3 or 1 negative zeros B) 3 or 1 positive zeros, 2 or 0 negative zeros
 C) 2 or 0 positive zeros, 2 or 0 negative zeros D) 3 or 1 positive zeros, 3 or 1 negative zeros

Answer Key

Testname: PRACTICE04

- 1) D
- 2) D
- 3) B
- 4) B
- 5) C
- 6) B
- 7) B