

List the possible rational zeros of each function. (Do not find the zeros.)

1. $f(x) = x^3 - 4x^2 + 11x + 8$

2. $f(x) = 5x^5 + 7x^4 - x + 12$

3. $f(x) = 4x^3 + 31x^2 - 7x + 10$

4. $f(x) = 3x^4 + 9x^2 + 25$

Find a third-degree polynomial equation (leave in factored form) with rational coefficients that has the given numbers as roots.

5. 1, -2 and 5

6. 1 and $3i$

7. 3 and $-4i$

8. -6 and $2i$

Solve Each Equation Using Any Method. Give exact answers and state any multiplicity.

9. $x^3 - 2x^2 + 5x - 10 = 0$

$$10. x^3 - 5x^2 + 7x - 35 = 0$$

$$11. 2x^4 - 5x^3 - 17x^2 + 41x - 21 = 0$$

$$12. x^4 + 2x^2 = 15$$

$$13. x^4 - 9x^2 = 8x^3$$