

Rational Root Theorem Worksheet. Please do all work on a separate sheet of paper.

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State the possible rational zeros for each function. Then find all rational zeros.

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

2) $f(x) = 2x^3 - 5x^2 + 4x - 1$

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

State the possible rational zeros for each function. Then find all zeros.

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

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

6) $f(x) = x^3 + 11x^2 + 35x + 33$

7) $f(x) = x^3 - 8x^2 + 9x + 6$

8) $f(x) = 3x^3 - 7x^2 + 29x - 9$

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

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

11) $f(x) = 2x^3 - 8x^2 + 15x - 27$

12) $f(x) = 5x^3 - 9x^2 + 3x + 1$

13) $f(x) = x^3 + 5x^2 - 48x - 10$

14) $f(x) = x^3 - 9x^2 + 15x - 2$

15) $f(x) = x^3 - 4x^2 - 3x + 14$

Answers to Rational Root Theorem Worksheet. Please do all work on a separate sheet of paper. (ID: 1

1) Possible rational zeros: $\pm 1, \pm 3, \pm \frac{1}{3}$

Rational zeros: $\left\{-3, 1, \frac{1}{3}\right\}$

5) Possible rational zeros: $\pm 1, \pm 3, \pm \frac{1}{3}$

Zeros: $\left\{3, -\frac{1}{3}, 1\right\}$

9) Possible rational zeros: $\pm 1, \pm 2, \pm \frac{1}{5}, \pm \frac{2}{5}$

Zeros: $\left\{-\frac{1}{5}, 1 + \sqrt{3}, 1 - \sqrt{3}\right\}$

13) Possible rational zeros: $\pm 1, \pm 2, \pm 5, \pm 10$

Zeros: $\{5, -5 + \sqrt{23}, -5 - \sqrt{23}\}$

3) Possible rational zeros: $\pm 1, \pm 2$

Rational zeros: $\{2, -1, 1\}$

7) Possible rational zeros: $\pm 1, \pm 2, \pm 3, \pm 6$

Zeros: $\{2, 3 + 2\sqrt{3}, 3 - 2\sqrt{3}\}$

11) Possible rational zeros:

$\pm 1, \pm 3, \pm 9, \pm 27, \pm \frac{1}{2}, \pm \frac{3}{2}, \pm \frac{9}{2}, \pm \frac{27}{2}$

Zeros: $\left\{3, \frac{1 + i\sqrt{17}}{2}, \frac{1 - i\sqrt{17}}{2}\right\}$

15) Possible rational zeros: $\pm 1, \pm 2, \pm 7, \pm 14$

Zeros: $\{2, 1 + 2\sqrt{2}, 1 - 2\sqrt{2}\}$