

3. Is $x - 2$ a factor of $p(x) = 6x^3 - 17x^2 + 11x - 2$?

yes

4. Is $x + 4$ a factor of $f(x) = 5x^4 + 16x^3 - 15x^2 + 8x + 16$? Is $x - 1$ a factor of $f(x)$?

yes

no

5. Is $x = 1$ a root of $f(x) = x^5 - 1$?

yes

For each polynomial, state the possible rational zeros. Then find all zeros.

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

$\pm 1, \pm 2$ $1, -1, 2$

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

$\pm 1, \pm 3, \pm \frac{1}{3}$ $1, \frac{1}{3}, -3$

c. $p(x) = 6x^3 - 17x^2 + 11x - 2$

$\pm 1, \pm 2, \pm \frac{1}{2}, \pm \frac{1}{3}, \pm \frac{2}{3}, \pm \frac{1}{6}$ $2, \frac{1}{3}, \frac{1}{2}$

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

$\pm 1, \pm 2, \pm \frac{1}{3}, \pm \frac{2}{3}$ $-2, \frac{1}{3}, \pm i$

e. $h(x) = 5x^3 - 9x^2 - 12x - 2$

$\pm 1, \pm 2, \pm \frac{1}{5}, \pm \frac{2}{5}$ $-\frac{1}{5}, 1 \pm \sqrt{3}$

f. $p(x) = 5x^4 - 46x^3 + 84x^2 - 50x + 7$

$\pm 1, \pm 7, \pm \frac{1}{5}, \pm \frac{7}{5}$

$1, 7, \frac{1}{5}$
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