Answer on Question #42521 – Math - Algebra

Problem.

Use the Rational Zeros Theorem to write a list of all potential rational zeros

f(x) = x3 - 10x2 + 4x - 24

Solution.

$$f(x) = x^3 - 10x^2 + 4x - 24.$$

The Rational Zeros Theorem states:

If $f(x)$ is a polynomial with integer coefficients and if $\frac{p}{q}$ is a zero of $f(x)$, then p is a factor of the constant term of $f(x)$ and q is a factor of the leading coefficient of $f(x)$.

The constant term of $f(x)$ is -24 and the leading coefficient of $f(x)$ is 1. As the leading coefficient equals 1, we have to consider only the factors of constant term, they will actually form a list of all potential rational zeros. They are 1, -1, 2, -2, 3, -3, 4, -4, 6, -6, 8, -8, 12, -12, 24, -24.

Answer: ±1, ±2, ±3, ±4, ±6, ±8, ±12, ±24.