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CALCULUS – The Newton-Raphson method

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Problem 5.1. Apply the Newton-Raphson method in order to construct a sequence that converges to the irrational number $\sqrt{7}$.

Problem 5.2. Write the *recursive* equation provided by the Newton-Raphson method to find the root of $f(x) = x^3 - 3x + 1$ in the interval $[1, 2]$.

Problem 5.3. Write the *recursive* equation provided by the Newton-Raphson method to find roots of $f(x) = \cos(x)$.

Problem 5.4. Write the *recursive* equation provided by the Newton-Raphson method to find possible roots of $f(x)$, where

(a) $f(x) = e^x$;

(b) $f(x) = x^3 + 2xe^x$.

How do you interpret the obtained results?