CALCULUS
Newton’s method
NEW
0530-1. We wish to solve \( x^5 + x^3 + 2 = 0 \). Starting with an initial guess of \( x_1 = -1 \), compute the next two guesses, \( x_2 \) and \( x_3 \), to at least four decimals, using Newton’s method.

0530-2. We wish to solve \( x^5 + x^3 + 3 = 0 \). Starting with an initial guess of \( x_1 = -1 \), compute the next two guesses, \( x_2 \) and \( x_3 \), to at least four decimals, using Newton’s method.

0530-3. We wish to solve \( x^5 - 2 = 0 \). Starting with an initial guess of \( x_1 = 1 \), compute the next two guesses, \( x_2 \) and \( x_3 \), to at least four decimals, using Newton’s method.
0530-4. We wish to solve \( x^5 - 2x^3 + 16 = 0 \). Starting with an initial guess of \( x_1 = -2 \), compute the next two guesses, \( x_2 \) and \( x_3 \), to at least four decimals, using Newton’s method.

0530-5. We wish to solve \( x^3 - 27 = 0 \). Starting with an initial guess of \( x_1 = -1 \), compute the next two guesses, \( x_2 \) and \( x_3 \), to at least four decimals, using Newton’s method.

0530-6. Using Newton’s method, calculate \( \sqrt[3]{5} \), to five decimal places.
0530-7. Find the unique solution to \(-x = \cos x\), to five decimal places.

0530-8. Find a solution to \(\tan x = \cos x\), to five decimal places, by applying Newton’s method to \(f(x) = (\tan x) - (\cos x)\), with \(x_1 = 1\).

0530-9. We wish to solve \(\sqrt[5]{t} = 0\).

Let \(t_1 := 0.25\). Starting with this initial guess \(t_1\), compute the next six guesses, \(t_2, \ldots, t_7\), using Newton’s method. Draw a picture, to illustrate what is happening.

(The picture should show \(t_1, t_2\) and \(t_3\). It needn’t show \(t_4\) through \(t_7\).)