CALCULUS

Newton's method

NEW

0530-1. NEW 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. NEW 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. NEW 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. NEW 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. NEW 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. NEW Using Newton's method, calculate $\sqrt[3]{5}$, to five decimal places.

0530-7. NEW Find the unique solution to $-x = \cos x$, to five decimal places.

0530-8. NEW 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. NEW 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.)