



a Work out the value of $x^3 - x - 5$ when $x = 2$ 1 evaluate the function	b Does $x^3 - x - 5 = 0$ have a root between 1 and 2? Yes: -5 then 1 a change of sign shows a root	c Between which two whole numbers is the root of $x^3 + x - 12 = 0$? 2 and 3 search for the change of sign	d $x_{n+1} = 2x_n - 1$, $x_1 = 4$. Find x_2 7 one step of an iteration formula
e $x_{n+1} = 3x_n - 4$, $x_1 = 3$. Find x_3 11 feed each answer back in	f Start with $x_1 = 2$ and use $x_{n+1} = \sqrt[3]{(x_n + 5)}$. Find x_2 to 3 decimal places 1.913 a calculator step, to 3 dp	g Start with $x_1 = 2$ and use $x_{n+1} = \sqrt{(5x_n - 2)}$. Find x_3 to 3 dp 3.485 keep full values, round at the end	h Start with $x_1 = 2$ and iterate $x_{n+1} = \sqrt[3]{(x_n + 5)}$. Where does x_n settle, to 2 dp? 1.90 iterate until it settles
i Which equation does $x_{n+1} = \sqrt[3]{(x_n + 5)}$ solve? $x^3 - x - 5 = 0$ the equation an iteration solves	j Rearrange $x^2 - 5x + 2 = 0$ into the form $x = \sqrt{(\dots)}$ $x = \sqrt{(5x - 2)}$ rearrange into $x = g(x)$	k Where does $x_{n+1} = \frac{x_n}{2} + 3$ settle? 6 the limit solves $x = g(x)$	l Show that the root of $x^3 - x - 5 = 0$ is 1.90 to 2 dp $f(1.895) < 0 < f(1.905)$ check the bounds for a change of sign



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