


14th April	
<p>Show that the equation</p> $x^3 + 5x = 4$ <p>has a solution between $x = 0$ and $x = 1$</p>	 Corbettmaths $x^3 + 5x - 4 = 0$ <p>when $x = 0$ $0^3 + 5 \times 0 - 4 = -4$ $x = 1$ $1^3 + 5 \times 1 - 4 = 2$ since there is a change of sign the equation $x^3 + 5x - 4 = 0$ has a solution between 0 and 1.</p>
<p>Show that the equation $x^3 + 5x = 4$ can be rearranged to give</p> $x = \frac{4}{5} - \frac{x^3}{5}$ $5x = 4 - x^3$ $x = \frac{4}{5} - \frac{x^3}{5}$	
<p>Starting with $x_0 = 0$ use the iteration formula</p> $x_{n+1} = \frac{4}{5} - \frac{x_n^3}{5}$ <p>three times to find an estimate for the solution of $x^3 + 5x = 4$</p>	$x_1 = \frac{4}{5} - \frac{0^3}{5} = \frac{4}{5} \quad (0.8)$ $x_2 = \frac{4}{5} - \frac{0.8^3}{5} = 0.6976$ $x_3 = \frac{4}{5} - \frac{0.6976^3}{5} = 0.7321$
<p>Trevor is a car salesman. He bought a car for £5000. Currently he is holding a sale with 35% off the price of all cars. Trevor wants to sell the car so that he makes a 10% profit on the price he paid.</p>	<p>How much should Trevor advertise the car for? Needs to sell for £5500</p> $65\% = 5500$ $1\% = 84.6153\dots$ $100\% = 28461.54$
<p>Here are the first 5 terms of a quadratic sequence</p> $8 \quad 7 \quad 15 \quad 9 \quad 24 \quad 11 \quad 35 \quad 13 \quad 48$ <p>Find an expression, in terms of n, for the nth term of this quadratic sequence.</p>	$a = 1$ $3a + b = 7$ $3 + b = 7$ $b = 4$ $a + b + c = 8$ $1 + 4 + c = 8$ $c = 3$ $n^2 + 4n + 3$