Name: _____ 5-a-day Higher Plus

22nd August

Corbettmaths

Given

$$2^y = \frac{1}{16}$$

Find y

$2^{-4} = \frac{1}{16}$

$y = -4$

Show the equation $x^2 - 5x + 1 = 0$ can be written in the form

$$x = 5 - \frac{1}{x}$$

$x^2 = 5x - 1$

$x = 5 - \frac{1}{x}$

Starting with $x_0 = 3$, use the iteration formula

$$x_{n+1} = 5 - \frac{1}{x_n}$$

twice to find an estimate of the solution of $x^2 - 5x + 1 = 0$

$x_1 = 5 - \frac{1}{3} = 4.\dot{6}$

$x_2 = 5 - \frac{1}{4.\dot{6}} = \frac{67}{14}$

4.785714286

Here are the first 5 terms of a quadratic sequence

$an^2 + bn + c$

3 9 17 27 39

Find an expression, in terms of n, for the nth term of this quadratic sequence

3 9 17 27 39

6 8 10 12

2 2 2

$a = 1$ $b = 3$ $c = -1$

$n^2 + 3n - 1$

A solid sphere has a diameter of 12cm.
The sphere is made from glass.
The density of the glass is 3.15g/cm

Find the mass of the glass sphere.

$d^m v$

$V = \frac{4}{3}\pi r^3$

$= \frac{4}{3} \times \pi \times 6^3$

$= 288\pi \text{ cm}^3$

$m = d \times v$

$= 3.15 \times 288\pi =$

2850.053g or 2.85kg