



Name: _____

Find the values of x_1 , x_2 and x_3 of the following iterative equations:

a) $x_{n+1} = 2 + \frac{2}{x_n}$ and $x_0 = 1$

$x_1 = 4$

$x_2 = 2.5$

$x_3 = 2.8$

d) $x_{n+1} = \frac{5}{3+(x_n)^2}$ and $x_0 = 0.5$

$x_1 = 1.538461$

$x_2 = 0.931643$

$x_3 = 1.292672$

b) $x_{n+1} = 1 + \frac{3}{1+x_n}$ and $x_0 = 1$

$x_1 = 2.5$

$x_2 = 1.857142$

$x_3 = 2.05$

e) $x_{n+1} = \frac{x_n+2}{x_n-4}$ and $x_0 = 0.5$

$x_1 = -0.714285$

$x_2 = -0.272727$

$x_3 = -0.404255$

c) $x_{n+1} = 5 - \frac{1}{x_n}$ and $x_0 = 1$

$x_1 = 4$

$x_2 = 4.75$

$x_3 = 4.789474$

f) $x_{n+1} = 4 - \frac{2+x_n}{3(x_n)}$ and $x_0 = 0.4$

$x_1 = 6$

$x_2 = 4.444444$

$x_3 = 4.483333$

Find a solution to these iterative equations correct to 3 significant figures:

g) $x_{n+1} = 2 + \frac{2}{3+x_n}$ and $x_0 = 1$

$x = 2.37$

h) $x_{n+1} = 3 + \frac{6}{x_n}$ and $x_0 = 2$

$x = 4.37$

Exam question:Using $x_{n+1} = -2 - \frac{2}{(x_n)^2}$ with $x_0 = -1$ a) Find the values of x_1 , x_2 and x_3

$x_1 = -4$

$x_2 = -2.125$

$x_3 = -2.442907$

b) Continue the iteration to find a solution correct to 2 decimal places

-2.36

