Iteration *Fluency*

ANSWERS

Find x_1 to 3 decimal places

1 $x_{n+1} = \sqrt{x_n + 5}, x_0 = 2$ 2.646

2 $x_{n+1} = \sqrt[3]{x_n + 10}, x_0 = 2$ 2.289

3 $x_{n+1} = \frac{3}{x_n + 2}, x_0 = 2$ 0.750

4 $x_{n+1} = \sqrt{2x_n + 7}, x_0 = 3$ 3.606

5 $x_{n+1} = \frac{x_n^2 + 4}{5}, x_0 = 0$ 0.800

6 $x_{n+1} = 4 - \frac{1}{x_n}, x_0 = 3$ 3.667

Find x_2 to 3 decimal places

7 $x_{n+1} = \sqrt{x_n + 5}, x_0 = 2$ 2.765

8 $x_{n+1} = \sqrt[3]{x_n + 10}, x_0 = 2$ 2.308

9 $x_{n+1} = \frac{3}{x_n + 2}, x_0 = 0$ 0.857

10 $x_{n+1} = \sqrt{3x_n + 1}, x_0 = 4$ 3.438

11 $x_{n+1} = \frac{x_n^2 + 4}{5}, x_0 = 2$ 1.312

12 $x_{n+1} = 2 + \frac{1}{x_n^2}, x_0 = 2$ 2.198

Find x_3 to 3 decimal places

13 $x_{n+1} = \sqrt{x_n + 5}, x_0 = 2$ 2.787

14 $x_{n+1} = \sqrt[3]{2x_n + 5}, x_0 = 2$ 2.094

15 $x_{n+1} = \frac{5}{x_n + 3}, x_0 = 1$ 1.197

16 $x_{n+1} = \sqrt{10 - x_n}, x_0 = 3$ 2.700

17 $x_{n+1} = \frac{x_n^3 + 1}{4}, x_0 = 0$ 0.254

18 $x_{n+1} = \sqrt[3]{x_n^2 + 4}, x_0 = 1$ 1.969

Iterate until the answer to 2 dp stops changing. Give the root to 2 dp.

19 $x_{n+1} = \sqrt{x_n + 5}, x_0 = 2$ 2.79

20 $x_{n+1} = \sqrt[3]{x_n + 10}, x_0 = 2$ 2.31

21 $x_{n+1} = \frac{3}{x_n + 2}, x_0 = 0$ 1.00

22 $x_{n+1} = \sqrt{2x_n + 7}, x_0 = 3$ 3.83

23 $x_{n+1} = \sqrt[3]{3x_n + 1}, x_0 = 2$ 1.88

24 $x_{n+1} = 4 - \frac{1}{x_n}, x_0 = 3$ 3.73

Find x_4 to 3 decimal places

25 $x_{n+1} = \sqrt[3]{5 - x_n}, x_0 = 1$ 1.516

26 $x_{n+1} = \frac{2}{x_n^2 + 1}, x_0 = 0.5$ 0.604

27 $x_{n+1} = \sqrt{4 + \frac{1}{x_n}}, x_0 = 2$ 2.115

28 $x_{n+1} = \frac{x_n^3 + 2}{7}, x_0 = 0.5$ 0.289

29 $x_{n+1} = \sqrt[3]{x_n + 1}, x_0 = 1$ 1.324

30 $x_{n+1} = \frac{6}{x_n + 1}, x_0 = 1$ 1.765