

In Exercises 1–4, complete two iterations of Newton's Method for the function using the indicated initial guess.

1.  $f(x) = x^2 - 3$ ,  $x_1 = 1.7$       2.  $f(x) = 2x^2 - 3$ ,  $x_1 = 1$

3.  $f(x) = \sin x$ ,  $x_1 = 3$       4.  $f(x) = \tan x$ ,  $x_1 = 0.1$



In Exercises 5–14, approximate the zero(s) of the function. Use Newton's Method and continue the process until two successive approximations differ by less than 0.001. Then find the zero(s) using a graphing utility and compare the results.

5.  $f(x) = x^3 + x - 1$

6.  $f(x) = x^5 + x - 1$

7.  $f(x) = 3\sqrt{x-1} - x$

8.  $f(x) = x - 2\sqrt{x+1}$

9.  $f(x) = x^3 + 3$

10.  $f(x) = 1 - 2x^3$

11.  $f(x) = x^3 - 3.9x^2 + 4.79x - 1.881$

12.  $f(x) = \frac{1}{2}x^4 - 3x - 3$

13.  $f(x) = x + \sin(x + 1)$

14.  $f(x) = x^3 - \cos x$