

1. Approximate to four decimal places the root of the equation  $x^4 + 2x^3 - 5x^2 + 1$  using  $x_1 = 1$ .
2. Using Newton's method, approximate to 2 decimal places  $\sqrt[3]{30}$
3. Approximate to two decimal places the intersection of the graphs of  $y = x^2$  and  $y = \sqrt{x+3}$
4. Using Newton's method, approximate to 2 decimal places  $\sqrt{7}$
5. Using Newton's method, approximate the 2 decimal places the root of the equation  $x^3 = x - 1$
6. Sketch the graph of a function with  $x = 1$  as a root, but Newton's method fails with  $x_1 = 2$ .
7. Sketch the graph of a function where  $x_1 = 1$  fails to produce a  $x_2$  with Newton's method.
8. Sketch the graph of a function where  $x_1 = 1$  produces successive approximations which diverge to  $\infty$
9. What happens when each of the  $x$  values in the graph are used as initial approximations in Newton's Method? Sketch the result for each.

