



NEWTON'S METHOD

LESSON 3.8



NEWTON'S METHOD

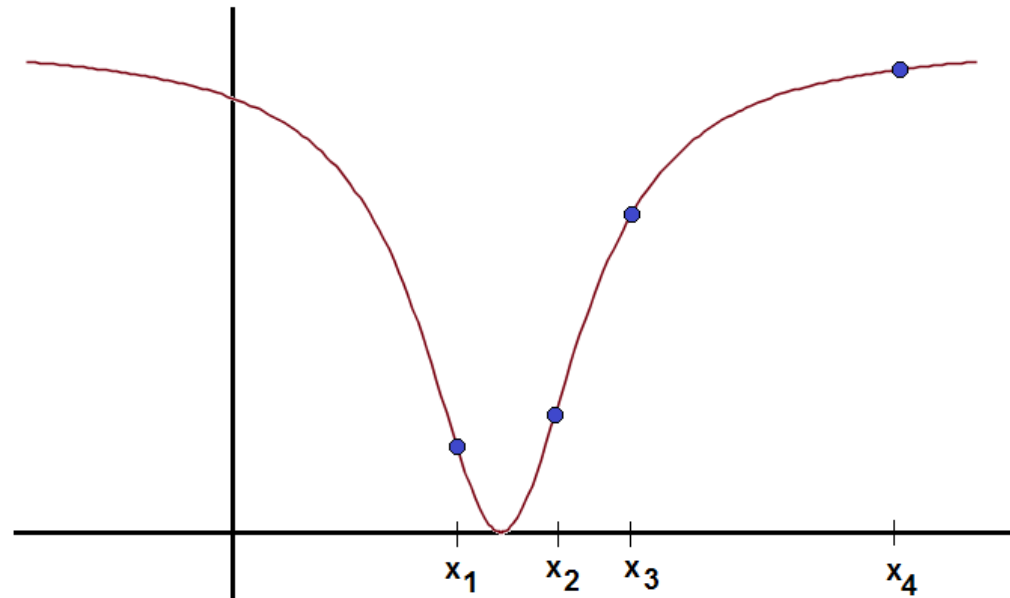
$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)},$$

$$n = 1, 2, 3, \dots$$

x_1 : initial guess

WARM UP

Consider using each of the values below as a starting point for Newton's method. For which of them do you expect Newton's method to "work" and lead to the root of the function?



PROBLEM

Approximate the
solution to the
equation $\cos x - x = 0$.

PROBLEM

Approximate the
 x -intercept to the function

$$f(x) = x^3 + 6x^2 + 9x + 1.$$

Use $x_1 = 0$ on one attempt;

Use $x_1 = -2$ on another.

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<http://mathfaculty.fullerton.edu/mathews/a2001/Animations/RootFinding/NewtonMethod/Newtonbb.html>