

1. Find the value of $\sqrt[4]{27}$ to within 7 decimal places using *each* of the following methods.
 - (a) Use the Newton's Method tool found on the main tool bar
Tools-Tutors-Calculus-Single Variable-Newton's Method.
Display the plot in your worksheet and state the value of your approximation in a complete sentence.
 - (b) Use the `Student[Calculus1]` package. Display the sequence, an animation, and state the approximation in a complete sentence. Also, set the animation frame speed to 1 frame per second (FPS).
 - (c) Create a procedure in Maple that carries out Newton's Method. Suggested procedures using the `proc` command can be found in this week's info sheet. Display the sequence generated and then state your final approximation in a complete sentence.
2. Use Newton's Method to find all of the solutions of

$$x^5 + 3x^4 - 2x^3 - 18x^2 - 10x + 23 = 0$$

to the nearest ten-thousandth. At a minimum, display a Newton's Method sequence corresponding to each solution and describe the approximations you found in a complete sentence.

3. Use Newton's Method to solve the following problem to the nearest 0.0001%. U.S. tax law allows taxpayers to deposit \$6500 per year in tax-sheltered individual retirement accounts (IRAs). What interest rate will produce \$3,000,000 after 50 years of faithful contributions? Use the compound amount formula: If p dollars are deposited yearly at an effective annual interest rate r , then the total value $V(n)$ after n years is given by

$$V(n) = \frac{p}{r} ((1 + r)^{n+1} - 1).$$

At a minimum, display the sequence and state your approximation in a complete sentence.