

1. Find the value of $\sqrt[4]{22}$ to the nearest 0.00001.
 - (a) Use the Newton's Method tool found on the main toolbar **Tools-Tutors-Calculus-Single Variable-Newton's Method**. Display the plot in the worksheet and state the 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 3 frames per second (FPS).
 - (c) Write a process, procedure, or program, in Maple, for Newton's Method. A suggested method is to use the procedure command, *proc*. Display the sequence and state the approximation in a complete sentence.
2. Use Newton's Method to find the roots for

$$x^4 - x^3 - 22x^2 + 41 = 0$$

to the nearest ten-thousandth. At a minimum, display each sequence and state the approximations in a complete sentence.

3. Use Newton's Method to solve the following problem to the nearest 0.001%. U.S. tax law allows taxpayers to deposit \$5000 per year in tax-sheltered individual retirement accounts (IRAs). What interest rate will produce \$650,000 after 30 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

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

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