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Course: Calc 1 11:30 AM / Internet
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Assignment: 4.6 Newton's Method

1. Use Newton's method to estimate the solutions of the equation $5x^2 + x - 1 = 0$. Start with $x_0 = -1$ for the left solution and $x_0 = 1$ for the right solution. Find x_2 in each case.

Using Newton's method with $x_0 = -1$, the third approximation, x_2 , to the left solution to $5x^2 + x - 1 = 0$ is .
 (Round to four decimal places as needed.)

Using Newton's method with $x_0 = 1$, the the third approximation, x_2 , to the right solution to $5x^2 + x - 1 = 0$ is .
 (Round to four decimal places as needed.)

2. Use Newton's method to estimate the one real solution of $x^3 + 3x + 2 = 0$. Start with $x_0 = 0$ and then find x_2 .

$x_2 =$
 (Round to four decimal places as needed.)

3. Use Newton's method to estimate the two zeros of the function $f(x) = x^4 - 2x - 15$. Start with $x_0 = -1$ for the left-hand zero and with $x_0 = 1$ for the zero on the right. Then, in each case, find x_2 .

Determine x_2 when $x_0 = -1$.

$x_2 =$
 (Simplify your answer. Round the final answer to four decimal places as needed. Round all intermediate values to four decimal places as needed.)

Determine x_2 when $x_0 = 1$.

$x_2 =$
 (Simplify your answer. Round the final answer to four decimal places as needed. Round all intermediate values to four decimal places as needed.)

4. Use Newton's method to obtain the third approximation, x_2 , of the positive fourth root of 4 by calculating the third approximation of the right 0 of $f(x) = x^4 - 4$. Start with $x_0 = 1$.

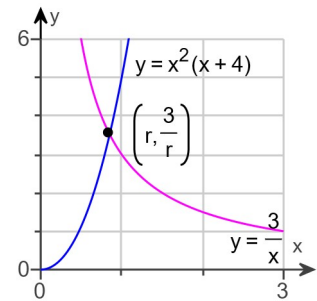
The third approximation of the fourth root of 4 determined by calculating the third approximation of the right 0 of $f(x) = x^4 - 4$, starting with $x_0 = 1$, is .
 (Round to four decimal places.)

5. At what value(s) of x does $\cos x = 8x$?

$x =$
 (Use a comma to separate answers as needed. Type an integer or decimal rounded to two decimal places as needed.)

6.

The graph of $y = x^2(x + 4)$ and $y = \frac{3}{x}$ ($x > 0$) intersect at one point, $x = r$, as shown to the right. Use Newton's method to estimate the value of r .



$r =$ (Type an integer or decimal rounded to four decimal places as needed.)