QUIZ 11

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Time: 20 minutes

Problem 1. Given $f(x) = x^2 - 2$ and initial guess $x_1 = 1$, use Newton's method to the approximations x_2 and x_3 for roots of f.

Problem 2. Notice that $f(x) = x^2 - 1$ has two roots, ± 1. Using initial guess $x_1 = 1$, use Newton's Method to find x_{2016}. (Hint: what happens if you plug in the root of f into Newton's formula. Compute x_2 and x_3, then give an answer based on any pattern you see).

Problem 3. The equation for the slant asymptote of the curve $y = \dfrac{2x^3 + 4}{x^2 - x + 1}$ is

(a) $2x - 2$ (b) 2 (c) $x^2 - x + 1$ (d) $2x$ (e) $2x + 2$

Problem 4. Find the antiderivatives of the following functions

a) $f(x) = 2x$, so $F(x) =$_____

b) $f(x) = \cos x$, so $F(x) =$_____

c) $f(x) = 3^x \ln 3$ so $F(x) =$_____

d) $f(x) = \dfrac{1}{\cos^2 x}$, so $F(x) =$_____

e) $f(x) = x^4$, so $F(x) =$_____

f) $f(x) = 2x\sqrt{x^2 + 8}$, so $F(x) =$_____

Problem 5. Which one of the following functions has a slant asymptote?

(a) $\dfrac{3x^2 + x + 3}{x^2 + 4}$ (b) $\dfrac{2x^3 + x^2 + 1}{x^2 + 2}$ (c) $\dfrac{x^6 + x + 3}{x^3 + 2x}$