NAME: Solutions BLOCK:

AP ESSENTIAL CALCULATOR SKILLS – SAMPLE SET

1. Consider the function $f(x) = -2 + 0.05xe^{(2+\cos x)}$ on the domain $[0, 10]$.

   Graph the function $f(x)$ and **find** the zero(s) on $[0, 10]$. (Round to three decimal places)

$x = 4.827$, $x = 8.295$

2. Find the derivative of $y = -2 + 0.05xe^{(2+\cos x)}$ at $x = 0.4$ (Round to three decimal places)

0.783

3. Let $f(x) = x^{\sin x} + \tan^{-1}\left(\ln\left(x^2 + 4\right)\right)$.

Use the graph of the derivative to count the number of zeros of $f'(x)$ on the domain $[0, 4]$.

Provide a very rough sketch of the derivative function on the $x \times y$ window $[0, 4] \times [-5, 5]$

$f'(x)$ has **two** zeros on $[0, 4]$