

NAME:

Math 103: College Algebra and Trigonometry
Quiz 4, 17 October 2008

The following two questions are worth a total of 10 points. The majority of the credit you receive will be based on the completeness and the clarity of your responses. Show your work, and avoid saying things that are untrue, ambiguous, or nonsensical.

1. Astatine-210 (^{210}At) is a radioactive isotope of the element astatine. The amount $A(t)$ of astatine-210 present after t hours follows an exponential decay model and is described by

$$A(t) = A_0 e^{-0.0856t},$$

where A_0 is the amount of astatine-210 present at time $t = 0$. What is the half-life of astatine-210 (that is, how long does it take for half of a sample of astatine-210 to decay)?

2. To the nearest hundredth of a degree, how many degrees are in one radian?

3. **Bonus** (+3 points) Solve

$$\frac{(x-2)^3}{x+1} \geq 0.$$