

MATH 131, Fall 2019
Quiz 6 Alternate
10/24/19

Name: _____

Section: _____

For full credit you must present a clearly organized solution, showing all supporting calculations. Include units in your final answers and leave them in exact form (you do not need to calculate decimal approximations).

1. A 100 milligram sample of an unidentified radioactive substance decays to 80 milligrams after 20 years. Find the half life of the substance, and re-express the mass in milligrams as a function of time in years since you obtained the original 100 milligrams in terms of the half-life.

2. A particle moves along the curve $xy = 1$ such that the particle approaches the y axis with a horizontal velocity component equal to the negative of its x coordinate. If the particle started at the point $(1, 1)$, find the time when the particle reaches a point P a distance of $1/3$ from the y axis, and find the velocity at which the particle's distance to the x axis increases as it passes through this point P .