Math 251, section 01
Quiz 4 September 21, 2016

Name:

By handing in this quiz you assert that you understand and have followed IIT's guidelines for academic integrity.

(1) Suppose the position of a particle at time t is given by $\langle (1+t)^{3/2},\ t-t^2,\ e^{-t} \rangle$.

(a) Find the velocity of the particle at time 0.

(b) Find the acceleration of the particle at time 0.

(c) Find the tangential component of acceleration at time 0.

(d) Find the normal component of acceleration at time 0.

(e) At time 0, is the particle speeding up or slowing down? How do you know?

(2) Consider the function $f(x,y) = \dfrac{x^2+y^2}{y}$. Sketch the contour plot for f. (You should include at least five level curves, but you can choose them; the most convenient ones will occur at heights that are even integers.)