

QUIZ MATH 151 Sections 525-527
WEEK 6

NAME _____ SECTION _____

Show all you work and box your final answer.

1. [25pts] The position function of a particle is given by

$$s(t) = \frac{t^3}{3} - \frac{t^2}{2} - t, \quad t \geq 0.$$

When does the particle reach a velocity of $5m/s$?

2. [50pts] Find each limit:

(a)
$$\lim_{t \rightarrow 0} \frac{\cos t - 1}{\sin t}$$

(b)
$$\lim_{x \rightarrow 0} \frac{\sin(9x)}{\sin(8x)}$$

3. [25pts] Find the equation of the tangent line to the curve
- $y = \tan x$
- at point
- $(\pi/4, 1)$
- .