Math 151

Show Your Work! October 21, 2019 Name _____
Good Luck! Quiz #4 A (please print)

1. L and W are FUNCTIONS of t. (1 each)

$\frac{d}{dt}\tan(2+5L) =$ _____ $\frac{d}{dt}L^3+W =$ _____

2. The location of a bug at time t seconds is $x(t) = t^3 - t^2 + 3$ $y(t) = 3t^2 - 5t + 1$ meters. (UNITS!)

(4) (a) When t=2 the speed of the bug is _____ (2 decimal places)

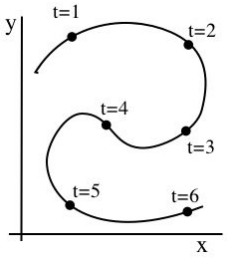
(3) (b) When t=2, the equation of the tangent line to the bug's path is y = _____

(Show your work!)

3. Fill in each blank with + – 0 or und

(3)

t	dx/dt	dy/dt	dy/dx
2			



4. Water is filling a spherical balloon. When the radius is 5 inches, the radius is increasing at a rate of 2 inches per minute. How fast is the water entering the balloon?

(sphere $V = \frac{4}{3}\pi R^3$) _____ (2 decimal places)

(3)

5. The length L of a rectangle is 8 cm and is decreasing at a rate of 2 cm/min. The width W of the rectangle is 4 cm and is increasing at a rate of 1 cm/min.

(a) How fast is the area A of the rectangle changing? _____

(b) How fast is the length L of the diagonal of the rectangle changing? _____

(3)(3) (Show your work!)