

Math 151**Show Your Work!**

Good Luck!

February 5, 2018

Quiz #4 A

Name _____

(please print)

1. $\frac{d}{dx} 7^x =$ _____ $D(\ln(x^3 + e^x)) =$ _____ $D(\tan(3 + x^2)) =$ _____

(1 each)

2. Calculate the following derivative. **Circle your answer.** (Do NOT simplify your answer.)

(3) $y = \frac{7}{x} + \sin(3x)$ $y'' =$

3. The location of a bug at time t minutes is $x(t) = 5 + 2t$ $y(t) = 3t + t^3$ feet. (UNITS!)

(2) (a) When $t=1$ the speed of the bug is _____

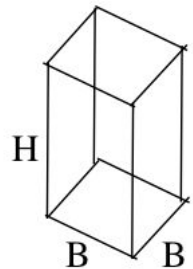
(2) (b) When $t=1$, the equation of the tangent line to the bug's path is $y =$ _____

4. A and P are functions of the variable t . Then $\frac{d}{dt}(e^A - \sin(Px)) =$ _____

(2)

5. A crystal has a square base (see diagram). When the base B is 3 cm and the height H is 7 cm the base is increasing at a rate of 2 cm/day and the height is increasing at a rate of 3 cm/day. At that time how fast is the volume changing? _____

(4)



6. $f(x) = x^2 - 3x + 1$. Apply Newton's Method starting with $x_0 = 1$ to calculate x_1 and x_2 .

$x_1 =$ _____ $x_2 =$ _____

(3)

7. The figure shows the graph of $f(x)$ and the location of x_0 . Find and LABEL the locations of x_1 and x_2 obtained by using Newton's Method..

(2)

