

Section 9
Quizzes 4, 5, 6

1. Find the equation of the tangent line to the graph of $f(x) = 3^x$ at $x = 1$.
2. A population is growing according to the formula $P(t) = 35,000(.98)^t$, where t is the number of years since January 1, 1960. At what rate was the population changing on January 1, 1983? What is the significance of the sign?
3. Differentiate $y = t^2 + 5 \ln t$.
4. Differentiate $f(x) = (x+100)^{99}$.
5. Differentiate $y = x^2 \ln(2x+1)$.
6. Find $\frac{dy}{dx}$ if $y = 2e^{2x} + 3 \sin x + 5$
7. Find y' if $y = \frac{x}{1 + \ln x}$.
8. Some values of f are given in the table below. Approximate the value of $f'(.6)$.
Also $f''(.6)$.