Math 220 (section AD?) **Quiz 10** **Fall 2013**

Name _____

- You have 20 minutes
- No calculators
- Show sufficient work

1. (2 points) Precisely state *The Mean Value Theorem*.

2. (2 points) Evaluate the definite integral. Simplify your final answer.

$$\int_{\sqrt{5}}^{\sqrt{21}} \frac{6x}{\sqrt{x^2+4}}\,dx$$

3. (2 points each) Evaluate the indefinite integrals.

(a) $\int \frac{6x+15}{9x^2+1}\,dx$

(b) $\int 5x^{14}\left(x^5+4\right)^{100}\,dx$

4. (2 points) Consider the finite region **R** bounded by $y = 3e^{2x} + 1$, $y = 17 - e^{2x}$ and the y-axis. Determine the area of **R** by evaluating a definite integral with respect to x. You should simplify your final answer.

5. (1 bonus point) Set up, but do not evaluate, one or more definite integrals with respect to y to represent the area of **R** in the previous problem.