

Name \_\_\_\_\_

- You have 15 minutes
- No calculators
- Show sufficient work

1. (2 points) Evaluate the integral  $\int_1^2 \frac{24x}{1+4x^2} dx$ .

2. (2 points) Evaluate the integral  $\int \frac{12}{1+9x^2} dx$ .

3. (2 points) Precisely state the *Mean Value Theorem*.

4. (4 points) Consider the finite region bounded by the curves  $x = \frac{1}{8}y^2$  and  $y = x^2$ . In the following manner set up, but do not evaluate, definite integrals which represent the area of this region.

(a) Integrate with respect to  $x$ .

(b) Integrate with respect to  $y$ . (The integrands in parts (a) and (b) should be different.)