Quiz 6. April 4, 08.   Name:

For full credit please: Show all details of your work in neat and well organized form.

1. Make use of the approximation $f(x + dx) \approx f(x) + f'(x)dx$ with $f(x) = \sqrt{x}$ to approximate $\sqrt{144.5}$. You may use the fact that $\sqrt{144} = 12$. Work with six decimal place accuracy. Then compare your approximation against the answer your calculator gives you.

2. Evaluate the definite integral $\int_1^9 \sqrt{x}\, dx$ by using the Fundamental Theorem of Calculus.

3. Let $y = f(x)$ be a function defined for all x with $a \le x \le b$. Explain the working definition of $\int_a^b f(x)\, dx$ as a sum. Your description should use the diagram below.