

Math 150 Practice Test 6

1. Evaluate:

a. $\int_4^9 \frac{1 - \sqrt{x}}{\sqrt{x}} dx$

b. $\int_{-1}^1 (x + 1)^2 dx$

c. $\int_0^{\frac{\pi}{3}} 2 \sec^2 x dx$

d. $\int_0^1 t(t^2 + 1)^{\frac{1}{2}} dt$

e. $\int_0^{\pi} \sin^2\left(\frac{t}{4}\right) \cos\left(\frac{t}{4}\right) dt$

f. $\int_0^{\sqrt{\frac{\pi}{2}}} x \cos(x^2) dx$

g. $\int_0^{\frac{\pi}{18}} \sec 3x \tan 3x dx$

2. Evaluate: $\frac{d}{dx} \left[\int_1^x \sin^4 2t dt \right]$.

3. a. Use a left endpoint approximation with $n = 4$ rectangles to approximate the area under the graph of $f(x) = 2x^2$ from $x = 1$ to $x = 3$.

b. Use a midpoint approximation with $n = 4$ rectangles to approximate the area under the graph of $f(x) = 2x^2$ from $x = 1$ to $x = 3$.