

Calculus Test

Your Name:

1. Evaluate the Riemann sum for $f(x) = 3 - \sqrt{x}$ on the interval $[1,9]$, with four subintervals, taking the sample points to be left endpoints.

2. The curve shown below is given by the function $y = x - x^2$. Find the area of the shaded region.



3. Use Part 1 of the Fundamental Theorem of Calculus to find the derivative of the function.

$$g(x) = \int_8^x \tan t \, dt$$

(4-14) Integrate. Show all work.

4. $\int \frac{x}{3} dx$

5. $\int 5 dx$

6. $\int \frac{x^2 - 16}{2x + 8} dx$

7. $\int \frac{\cos^2 x + \sin^2 x}{\sec x \cot x} dx$

8. $\int (7 - 5x)^9 dx$

9. $\int (\tan^2 x + 2) dx$

10. $\int x^2 \sin x dx$

11. $\int_{-1}^2 x(2x - 1)^8 dx$

12. $\int_{\pi/4}^{\pi} e^{\sin x} \cos x \, dx$

13. $\int_3^{12} \frac{4}{\sqrt[3]{4x-12}} \, dx$

14. $\int_0^1 \frac{x-6}{3x^2-5x-2} \, dx$