

Practice Quiz No. 9

Show all of your work, label your answers clearly, and do not use a calculator.

Problem 1 Find the generalized antiderivative of $f(x) = -2x^5 + 3x + 2$

Problem 2 $\int \sin(2s) + s ds =$

Problem 3 Solve the initial value problem:

$$\frac{dy}{dx} = 3x + 2, \quad y(0) = -1$$

Problem 4 Find the generalized antiderivative of

$$g(x) = \frac{1}{1 + (3x)^2}$$

Problem 5 $\int 2^x dx =$

Problem 6 Using an upper sum approximation with two rectangles of equal width, approximate the area of the region that lies below the graph of $f(x) = x^3$, above the x -axis, and to the left of $x = 2$.

Problem 7 Using a lower sum approximation with four rectangles of equal width, approximate the area of the region that lies below the graph of $f(x) = 2x$, above the x -axis, and to the left of $x = 2$.

Problem 8 Using a sum approximation with the midpoint method with three rectangles of equal width, approximate the area of the region that lies below the graph of $f(x) = 1 - x^2$, above the x -axis, and to the right of $x = 0$.