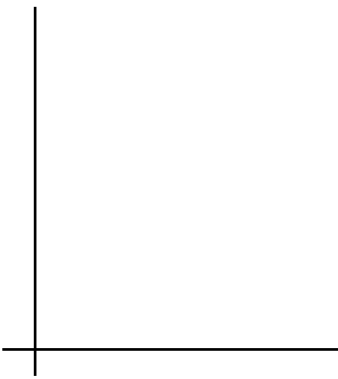


9.1 Riemann Sums

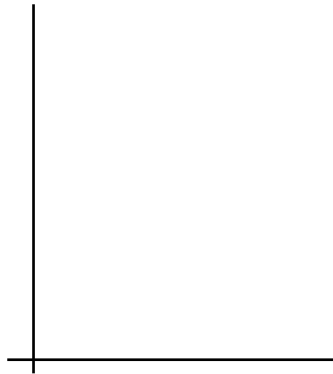
Riemann Sum –

Find the area underneath the curve $y = x^2 + 1$ from $x = 0$ to $x = 3$.

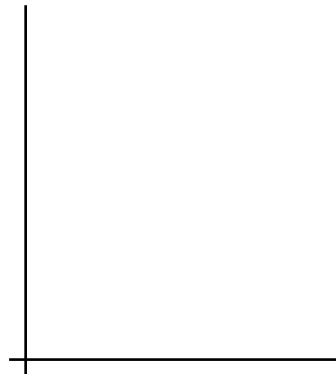
Right Sum



Left Sum



Midpoint Sum



Right Sums –

Left Sums –

Midpoint Sums –

Width formula –

Approximate the area beneath the curve $g(x) = -\cos x$ on the interval $\left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$ using $n = 4$ rectangles and (1) left sums, (2) right sums, and (3) midpoint sums.