

Section 5-5 : Area Problem

For problems 1 – 3 estimate the area of the region between the function and the x -axis on the given interval using $n = 6$ and using,

- (a) the right end points of the subintervals for the height of the rectangles,
- (b) the left end points of the subintervals for the height of the rectangles and,
- (c) the midpoints of the subintervals for the height of the rectangles.

1. $f(x) = x^3 - 2x^2 + 4$ on $[1, 4]$

2. $g(x) = 4 - \sqrt{x^2 + 2}$ on $[-1, 3]$

3. $h(x) = -x \cos\left(\frac{x}{3}\right)$ on $[0, 3]$

4. Estimate the net area between $f(x) = 8x^2 - x^5 - 12$ and the x -axis on $[-2, 2]$ using $n = 8$ and the midpoints of the subintervals for the height of the rectangles. Without looking at a graph of the function on the interval does it appear that more of the area is above or below the x -axis?

