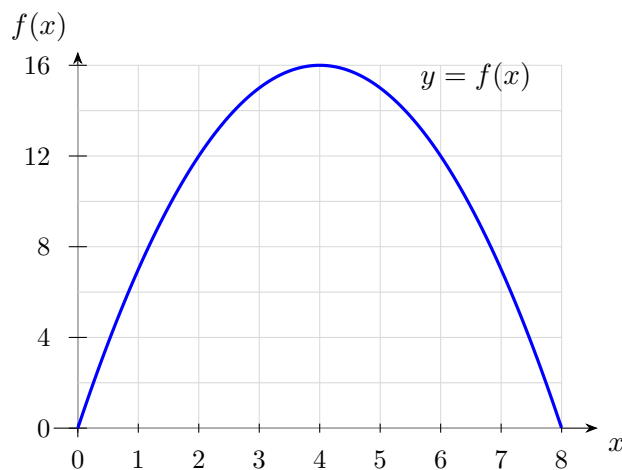


1. (2 points) Consider the function $f(x) = -x^2 + 8x$. The graph of $f(x)$ is shown below. Compute the Riemann sum M_4 for approximating $\int_0^8 f(x) dx$ using 4 subintervals of equal width on $[0, 8]$.



- (a) 22
(b) 44
(c) 80
(d) 88
(e) 176
2. (2 points) Which of the following is the Riemann sum *using right endpoints*, with n rectangles, that approximates the area between $y = x^3$ and the x -axis from $x = 0$ to $x = 2$?

(a) $\sum_{i=1}^n \left(\frac{2}{n}(i-1)\right)^3 \cdot \frac{2}{n}$

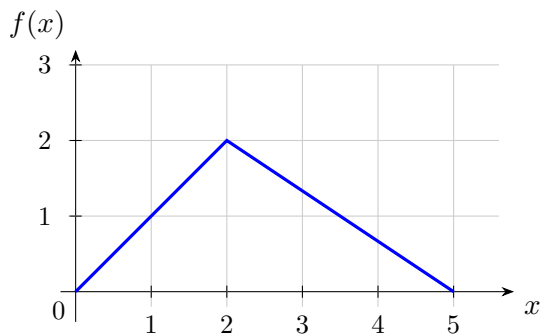
(b) $\sum_{i=1}^n \left(\frac{2i}{n}\right)^3 \cdot \frac{3}{n}$

(c) $\sum_{i=1}^n \left(\frac{2}{n}\left(i - \frac{1}{2}\right)\right)^3 \cdot \frac{2}{n}$

(d) $\sum_{i=1}^n \left(2 + \frac{2i}{n}\right)^3 \cdot \frac{2}{n}$

(e) $\sum_{i=1}^n \left(\frac{2i}{n}\right)^3 \cdot \frac{2}{n}$

3. (2 points) Use the graph below to evaluate $\int_0^5 f(x) dx$.



- (a) 1
(b) 3
(c) 4
(d) 5
(e) Not enough information to determine.
4. (2 points) Which of the following expresses the limit

$$\lim_{n \rightarrow \infty} \sum_{i=1}^n \left(2 + \frac{3i}{n}\right)^2 \frac{3}{n}$$

as a definite integral? (You may assume right-hand endpoints are used.)

- (a) $\int_0^3 (2 + 3x)^2 dx$
(b) $\int_2^5 (2 + x)^2 dx$
(c) $\int_2^5 x^2 dx$
(d) $\int_2^5 4x dx$
(e) None of the above
5. (2 points) Do you have any questions or comments about the course so far? What has been the most helpful? What would you like to see more of?