CALCULUS I – Worksheet #28

1. Suppose f and g are continuous functions and that:

$$\int_1^2 f(x)\,dx = -4 \text{ and } \int_2^5 f(x)\,dx = 6 \text{ and } \int_1^5 g(x)\,dx = 8 \text{ then find:}$$

a) $\int_1^5 f(x)\,dx$ b) $-4\int_5^1 f(x)\,dx$ c) $\int_1^5 [4f(x) - 2g(x)]\,dx$

2. Suppose f and h are continuous functions and that:

$$\int_1^7 f(x)\,dx = -1 \text{ and } \int_7^9 f(x)\,dx = 5 \text{ and } \int_7^9 h(x)\,dx = 4 \text{ then find:}$$

a) $\int_1^9 -2f(x)\,dx$ b) $\int_7^9 [2f(x) - h(x)]\,dx$ c) $\int_9^7 f(x)\,dx$ d) $\int_7^7 [f(x) + h(x)]\,dx$

3. Suppose f is continuous on [0,4] and that:

$$\int_0^3 f(x)\,dx = 3 \text{ and } \int_0^4 f(z)\,dz = 7 \text{ then find } \int_3^4 f(y)\,dy$$

4. Find $\sum_{i=1}^{4} i^2 - 1 =$

For 5 and 6 find the approximate area for four equal intervals by a) left-endpoint rectangles, b) right-endpoint rectangles, c) midpoint rectangles, d) trapezoid rule, and e) the exact area by integral. In parts a, b, c and d find the answer correct to 3 places past the decimal point.

5. $\int_1^2 \frac{1}{x^2}\,dx$

6. $\int_0^4 \sqrt{x}\,dx$