

Math 2253 Homework Due in class Tuesday, November 10 Show all work to get credit.

For 1 -3, Graph the integrands and then use appropriate area formulas to evaluate the integrals. Do not use the Fundamental Theorem, sigma notation, rectangular approximation, or limits.

1. $\int_0^5 (-\sqrt{25-x^2}) dx$ 2. $\int_{-1}^5 (|x| + 1) dx$ 3. $\int_{-1}^5 2x dx$

For 4-6, suppose that $\int_1^5 f(x) dx = 3$, $\int_1^2 f(x) dx = 4$, $\int_1^5 g(x) dx = -5$. Find the following:

4. $\int_5^1 f(x) dx$ 5. $\int_5^2 f(x) dx$ 6. $\int_1^5 (5f(x) - 2g(x)) dx$

For 7- 9, evaluate the indefinite integrals by hand and simplify your answers,

7. $\int (5 \sec^2 x - \frac{2}{x^5}) dx$ 8. $\int (3x^5 - 4x + 7) dx$ 9. $\int (\sqrt[3]{x} - \frac{5}{x^3} + \frac{1}{3x^5}) dx$

10. If $f'(x) = 2x^3 + 4 \sin x$ and the graph of $f(x)$ passes through the point $(0,3)$, find $f(x)$.