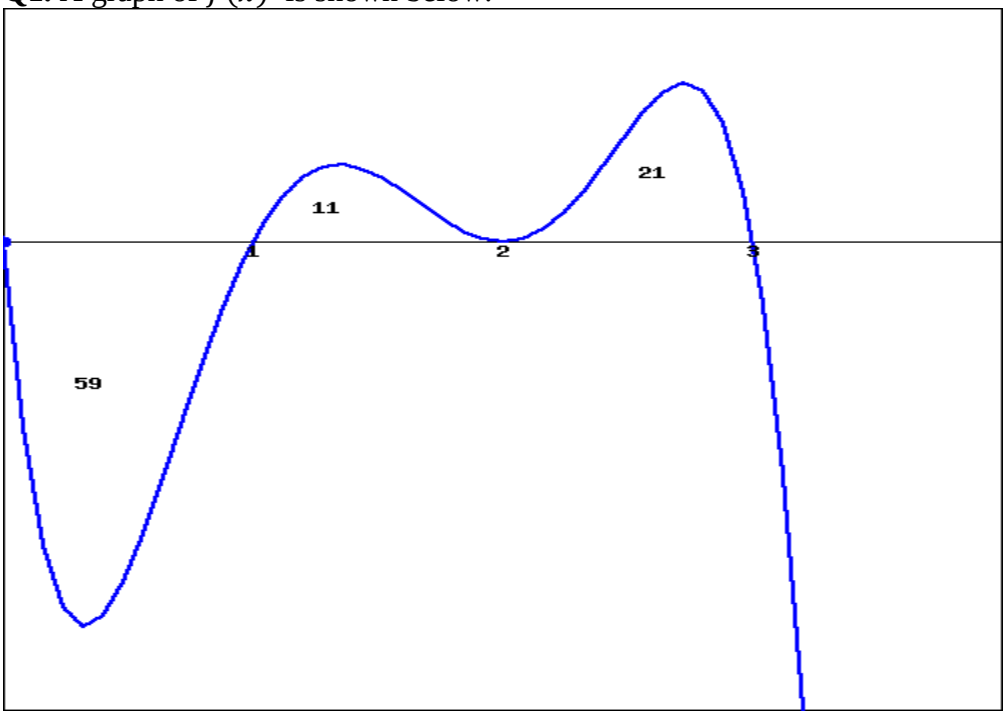
MATH 141: Calculus II, **Midterm Exam 1** Practice Questions

Q1. A graph of $f(x)$ is shown below.



The numbers shown represent the geometric area of each region. Evaluate the following definite integrals.

(1) $\int_0^1 f(x)dx$

(2) $\int_0^2 f(x)dx$

(3) $\int_0^3 f(x)dx$

(4) $\int_1^2 -5f(x)dx$

Q2. Find the following definite integrals

(1) $\int_4^9 \left(5 + x\sqrt{x}\right) dx$

(2) $\int_0^{49\pi^2} \frac{\sin(\sqrt{x})}{\sqrt{x}}\, dx$

(3) $\int_0^{\pi} e^{\sin x} \cos x \, dx$

Q3. Find the following indefinite integrals.

(1) $\int \frac{\cos(\ln x)}{x} dx$

(2) $\int \frac{\sin(\frac{5}{x})}{10x^2} dx$

Q4. If $f(t)$ is continuous and $\int_0^{81} f(t)dt = -10$, find the integral $\int_0^9 f(9t)dt$.

Q5. Let $f(x) = 2 + \frac{1}{x}$. Find the average value $f(x)$ on [1,2].