

Problem Set 2-Wednesday

Group Number:	
Members:	

**Problem 3**

If  $\int_{-5}^7 f(x)dx = -17$ ,  $\int_{-5}^{11} f(x)dx = 32$ , and  $\int_8^7 f(x)dx = 5$ , then  $\int_{11}^8 f(x)dx =$ .

**Problem 4**

If  $f(x) = \begin{cases} -x; & -4 \leq x < 0 \\ \sqrt{4-x^2}; & 0 \leq x \leq 2 \end{cases}$ , then the value of the integral  $\int_{-4}^2 f(x)dx$  by interpreting in terms of area(s) is.

**Problem 5**

Write the limit as an integral (do not evaluate)

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

**Problem 6**

$$\lim_{n \rightarrow \infty} \frac{2}{n^4} (1 + 8 + 27 + \cdots + n^3) =$$

**Problem 7**

If  $f$  is continuous function and

$$2 \leq f(x) \leq 5 \quad \text{for} \quad 3 \leq x \leq 9,$$

then ONE of the following statements is **\*\*FALSE\*\***

(A)  $\int_3^9 |f(x)| \, dx \geq 12$

(B)  $\int_3^9 (3 - f(x)) \, dx \geq -12$

(C)  $\int_3^9 (1 - |f(x)|) \, dx \geq -10$

(D)  $\int_3^9 -2f(x) \, dx \leq -24$

(E)  $\int_3^9 (f(x))^2 \, dx \geq 24$