Graph the integrand and use areas to evaluate the integral.

1) \[ \int_{1}^{4} (2x + 8) \, dx \]

Solve the problem.

2) Suppose that \[ \int_{4}^{6} f(x) \, dx = -2 \]. Find \[ \int_{5}^{6} f(x) \, dx \] and \[ \int_{6}^{4} f(x) \, dx \].

A) 0; 2
B) 0; -2
C) 5; -2
D) -2; 2

3) Suppose that \[ \int_{1}^{2} f(x) \, dx = -4 \]. Find \[ \int_{1}^{2} 4f(x) \, dx \] and \[ \int_{1}^{2} -f(x) \, dx \].

A) -16; 4
B) 4; 4
C) -16; -\frac{1}{4}
D) 0; -4

4) Suppose that \( f \) and \( g \) are continuous and that \[ \int_{4}^{8} f(x) \, dx = -6 \] and \[ \int_{4}^{8} g(x) \, dx = 7 \].

Find \[ \int_{4}^{8} [2f(x) + g(x)] \, dx \].

A) 2
B) -5
C) 8
D) 9
Evaluate the definite integral.

5) \( \int_{1}^{3} (4x^3) \, dx \)

6) \( \int_{2}^{3} (3x^{-2}) \, dx \)

7) \( \int_{-\pi/2}^{\pi/2} \sin x \, dx \)

Find the average value over the given interval.

8) \( y = x^2 - 4x + 2; [0, 5] \)

9) \( y = \frac{7}{x}; [1, e] \)