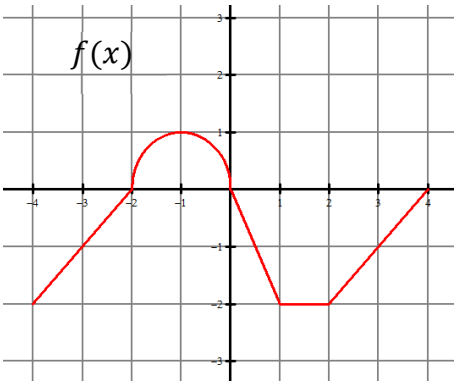
6.6 Properties of Definite Integrals

Calculus Name: _____ **CA #1**

The graph of f consists of line segments and a semicircle. Evaluate each definite integral.

1.



a. $\int_{-4}^{-2} f(x)\,dx =$

b. $\int_{-2}^{0} 4f(x)\,dx =$

c. $\int_{4}^{0} f(x)\,dx =$

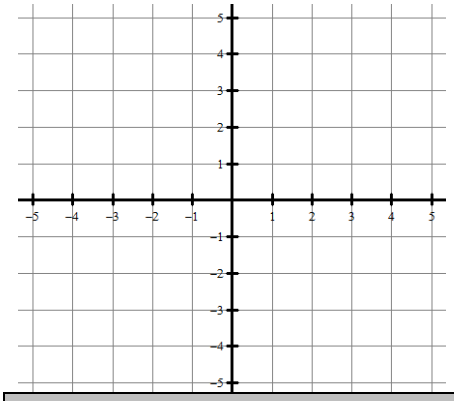
d. $\int_{-4}^{4} f(x)\,dx =$

e. $\int_{4}^{2} f(x)\,dx =$

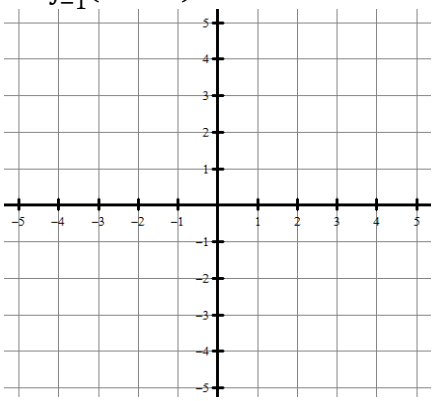
f. $\int_{-1}^{1} f(x)\,dx =$

Sketch a graph of the definite integral. Evaluate the integral with a graphing calculator.

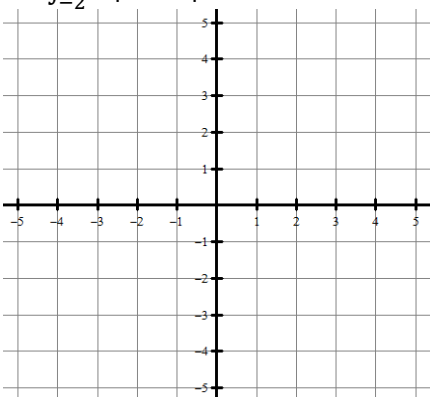
2. $\int_{-1}^{0}(x^3 - 1)\,dx =$



3. $\int_{-1}^{2}(5 - x^2)\,dx =$



4. $\int_{-2}^{3} -|x + 1|\,dx =$



Let f be a continuous functions that produces the following definite integral values.

$$\int_{-4}^{6} f(x)dx = 2 \text{ and } \int_{6}^{8} f(x)dx = -5$$

Find the following.

5. $\int_{-4}^{6} 5f(x)dx =$

6. $\int_{-4}^{8} f(x)dx =$

7. $\int_{8}^{6} f(x)dx =$

Let f be a continuous functions that produces the following definite integral values.

$$\int_{0}^{3} f(x)dx = -4 \text{ and } \int_{3}^{7} f(x)dx = 2$$

Find the following.

8. $\int_{3}^{0} f(x)dx =$

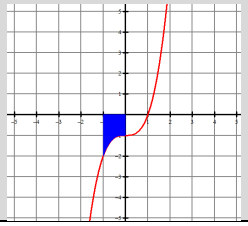
9. $\int_{3}^{3} f(x)dx =$

10. $\int_{3}^{7} 6f(x)dx =$

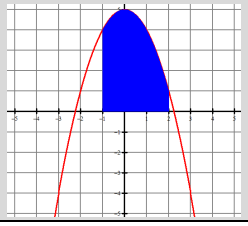
Answers to 6.6 CA #1

1. a. -2
   b. 2π
   c. 5
   d. $\frac{\pi}{2} - 7$
   e. 2
   f. $\frac{\pi}{4} - 1$

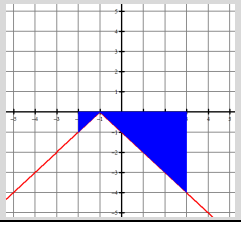
2. -1.25



3. 12



4. -8.5



5. 10
6. -3
7. 5
8. 4
9. 0
10. 12