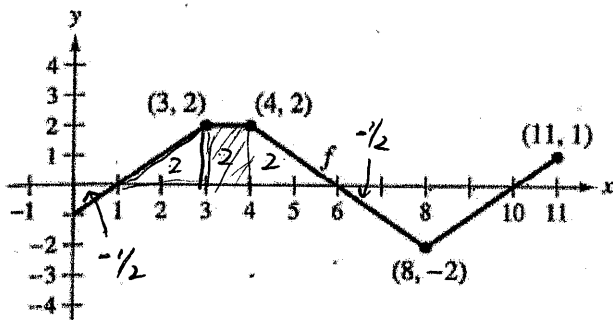


Ch. 4.3-4.4 Definite Integrals Selected Homework

4.3

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**Think About It** The graph of  $f$  consists of line segments, as shown in the figure. Evaluate each definite integral by using geometric formulas.



(a)  $\int_0^1 -f(x) dx = -(-1/2) = \boxed{1/2}$

(b)  $\int_3^4 3f(x) dx = 3 \int_3^4 f(x) dx = 3(2) = \boxed{6}$

(c)  $\int_0^7 f(x) dx = 6 - 1 = \boxed{5}$

(d)  $\int_5^{11} f(x) dx = -4 + 1 = \boxed{-3}$

(e)  $\int_0^{11} f(x) dx = -1/2 + 6 - 4 + 1/2 = \boxed{2}$

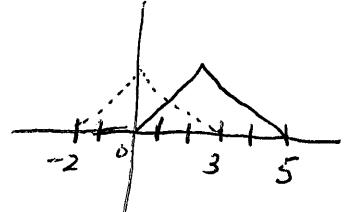
(f)  $\int_4^{10} f(x) dx = 2 - 4 = \boxed{-2}$

**9. Think About It** Consider the function  $f$  that is continuous on the interval  $[-5, 5]$  and for which

$\int_0^5 f(x) dx = 4.$

Evaluate each integral.

$2x \int_0^5 = 2(5) - 2(0) = 10$

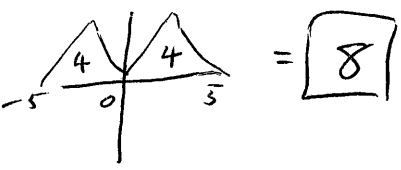


convert bounds:  
 $x = -2, u = x + 2 = -2 + 2 = 0$   
 $x = 3, u = x + 2 = 3 + 2 = 5$

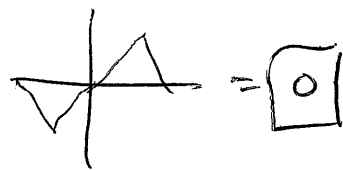
(a)  $\int_0^5 [f(x) + 2] dx = \int_0^5 f(x) dx + \int_0^5 2 dx = 4 + 10 = \boxed{14}$

(b)  $\int_{-2}^3 f(x+2) dx = \int_0^5 f(u) du = \boxed{4}$

(c)  $\int_{-5}^5 f(x) dx$  ( $f$  is even.)

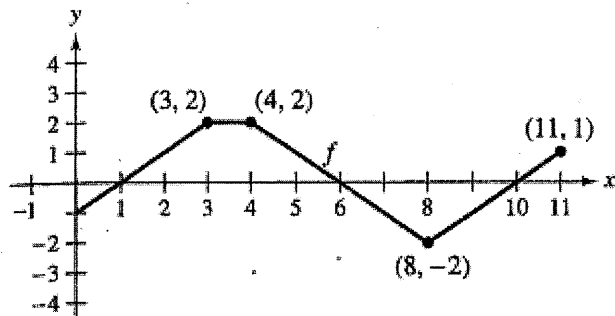


(d)  $\int_{-5}^5 f(x) dx$  ( $f$  is odd.)



### Ch. 4.3-4.4 Definite Integrals Selected Homework

**8. Think About It** The graph of  $f$  consists of line segments, as shown in the figure. Evaluate each definite integral by using geometric formulas.



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

(b)  $\int_3^4 3f(x) dx$

(c)  $\int_0^7 f(x) dx$

(d)  $\int_5^{11} f(x) dx$

(e)  $\int_0^{11} f(x) dx$

(f)  $\int_4^{10} f(x) dx$

**9. Think About It** Consider the function  $f$  that is continuous on the interval  $[-5, 5]$  and for which

$$\int_0^5 f(x) dx = 4.$$

Evaluate each integral.

(a)  $\int_0^5 [f(x) + 2] dx$

(b)  $\int_{-2}^3 f(x + 2) dx$

(c)  $\int_{-5}^5 f(x) dx$  ( $f$  is even.)

(d)  $\int_{-5}^5 f(x) dx$  ( $f$  is odd.)