

201-203-RE - Practice Set #4: Definite Integrals in Terms of Areas

(1) Given the following graph of  $f$ , find:

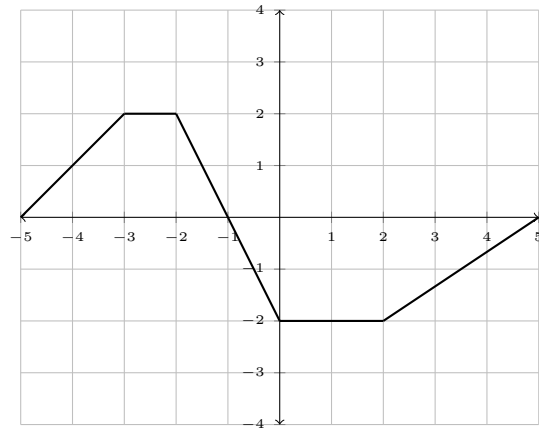
(a)  $\int_{-5}^{-3} f(x) dx$

(b)  $\int_{-5}^{-1} f(x) dx$

(c)  $\int_{-3}^1 f(x) dx$

(d)  $\int_{-1}^2 f(x) dx$

(e)  $\int_{-5}^5 f(x) dx$



(2) Given the following graph of  $f$ , find:

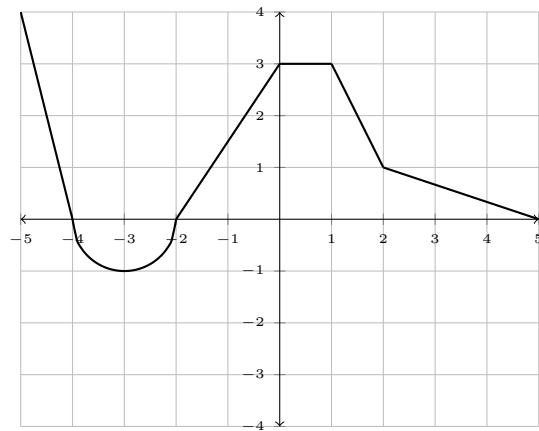
(a)  $\int_{-5}^{-2} f(x) dx$

(b)  $\int_{-3}^0 f(x) dx$

(c)  $\int_{-1}^1 f(x) dx$

(d)  $\int_{-2}^2 f(x) dx$

(e)  $\int_{-5}^5 f(x) dx$



(3) Given the following graph of  $f$ , find:

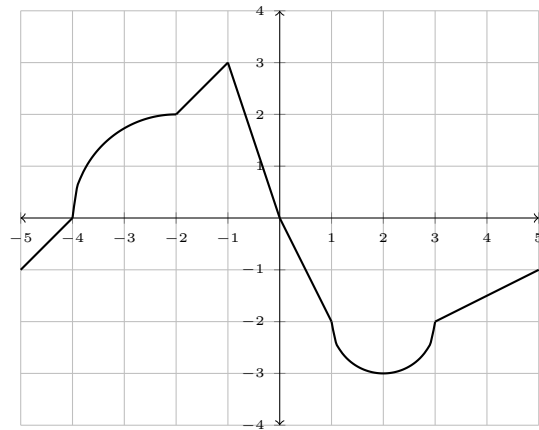
(a)  $\int_{-5}^{-2} f(x) dx$

(b)  $\int_0^{-4} f(x) dx$

(c)  $\int_{-1}^1 f(x) dx$

(d)  $\int_0^5 f(x) dx$

(e)  $\int_{-5}^5 f(x) dx$



(4) Given the following graph of  $f$ , find:

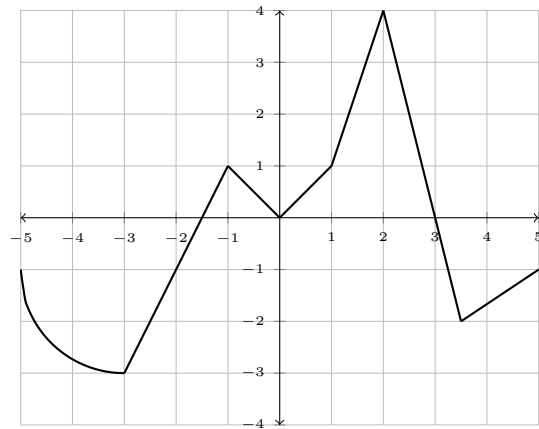
(a)  $\int_{-3}^{-5} f(x) dx$

(b)  $\int_{-5}^0 f(x) dx$

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

(d)  $\int_2^5 f(x) dx$

(e)  $\int_{-5}^5 f(x) dx$



(5) Given the following graph of  $f$ , find:

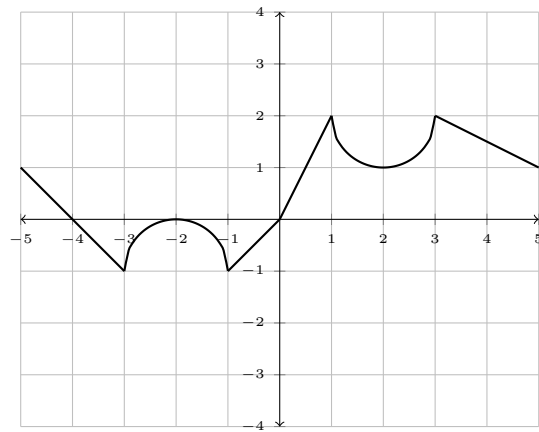
(a)  $\int_{-5}^{-1} f(x) dx$

(b)  $\int_1^{-3} f(x) dx$

(c)  $\int_{-1}^3 f(x) dx$

(d)  $\int_0^5 f(x) dx$

(e)  $\int_{-5}^5 f(x) dx$



(6) Given the following graph of  $f$ , find:

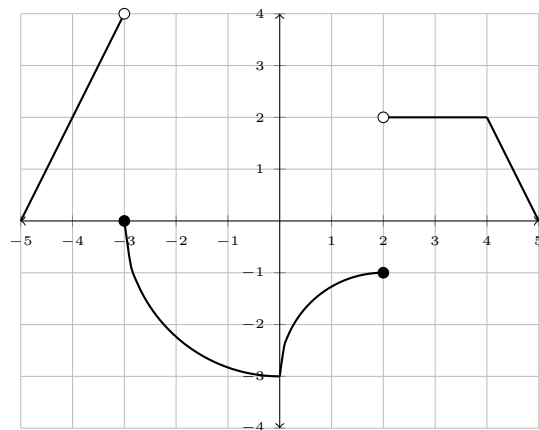
(a)  $\int_{-5}^0 f(x) dx$

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

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

(d)  $\int_2^2 f(x) dx$

(e)  $\int_{-5}^5 f(x) dx$



(7)  $\int_1^5 (4 - |x - 3|) dx$

(10)  $\int_{-1}^5 (6 - |3x - 2|) dx$

(13)  $\int_{-2}^3 (|4 - 4x| - 2x) dx$

(8)  $\int_{-4}^1 (|x + 2| - 5) dx$

(11)  $\int_3^7 (|5 - x| - 2) dx$

(14)  $\int_{-1}^4 (4 - |5 - 3x|) dx$

(9)  $\int_{-2}^4 (|2x - 5| + 3) dx$

(12)  $\int_{-8}^{-2} (4 - |-x - 6|) dx$

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**ANSWERS:**

(1) (a) 2

(b) 5

(c) 0

(d) -5

(e) -3

(2) (a)  $2 - \frac{\pi}{2}$

(b)  $3 - \frac{\pi}{4}$

(c)  $\frac{21}{4}$

(d) 8

(e)  $\frac{23}{2} - \frac{\pi}{2}$

(3) (a)  $\pi - \frac{1}{2}$

(b)  $-\pi - 4$

(c)  $\frac{1}{2}$

(d)  $-8 - \frac{\pi}{2}$

(e)  $\frac{\pi}{2} - \frac{9}{2}$

(4) (a)  $2 + \pi$

(b)  $-\pi - \frac{7}{2}$

(c) 3

(d)  $-\frac{3}{4}$

(e)  $-\pi\frac{5}{4}$

(5) (a)  $\frac{\pi}{2} - 2$

(b)  $\frac{3}{2} - \frac{\pi}{2}$

(c)  $\frac{9}{2} - \frac{\pi}{2}$

(d)  $8 - \frac{\pi}{2}$

(e)  $\frac{11}{2}$

(6) (a)  $4 - \frac{9\pi}{4}$

(b)  $-6 - \frac{5\pi}{4}$

(c)  $\pi - 4$

(d) 0

(e)  $3 - \frac{5\pi}{4}$

(7) 12

(8)  $-\frac{7}{2}$

(9)  $\frac{81}{2}$

(10)  $\frac{11}{3}$

(11) -4

(12) 14

(13) 21

(14)  $-\frac{10}{3}$