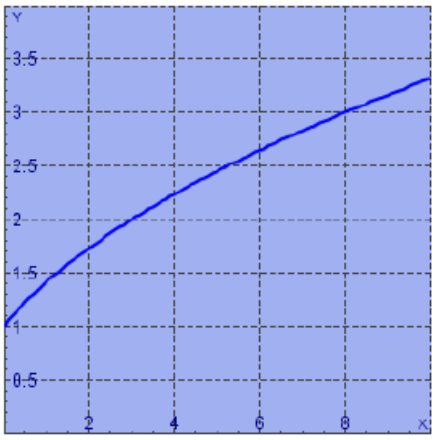
By reading values from the given graph of f, use five rectangles to find a lower estimate, to the nearest whole number, for the area from 0 to 10 under the given graph of f.



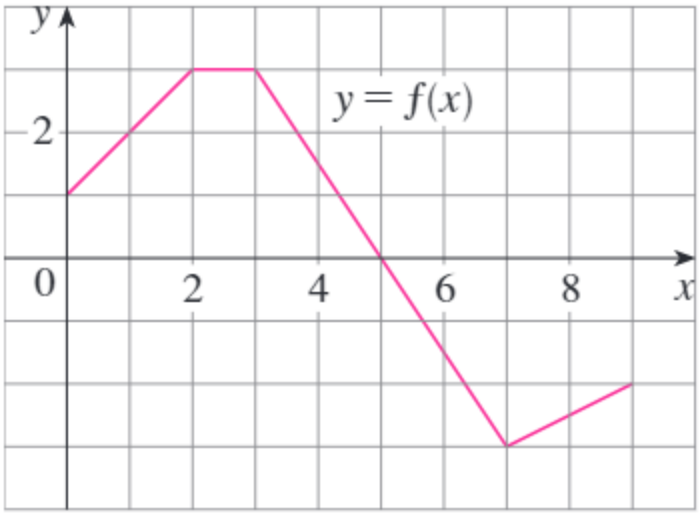
The graph of f is shown. Evaluate each integral by interpreting it in terms of areas.

(a) $\int_0^2 f(x)\,dx$

(b) $\int_0^5 f(x)\,dx$

(c) $\int_5^7 f(x)\,dx$

(d) $\int_0^9 f(x)\,dx$



Find f(x) from the given information

$$f'(x) = 5x^4 - 3x^2 + 4, \quad f(-1) = 2$$

$$f''(x) = -2 + 12x - 12x^2, \quad f(0) = 4, \quad f'(0) = 12$$

$$f''(x) = x^6 - 4x^4 + x + 1$$

$$f'''(t) = 12 + \sin t$$

Find the derivative of the following function

$$F(x) = \int_0^x \frac{t^2}{1 + t^3}\, dt$$

Evaluate the following integrals

$$\int_1^2 (8x^3 + 3x^2)\, dx$$

$$\int_0^1 (1 - 8v^3 + 16v^7)\, dv$$

$$\int_1^9 \frac{\sqrt{u} - 2u^2}{u}\, du$$

$$\int_{-1}^2 (3u - 2)(u + 1)\, du$$

$$\int_1^5 \frac{dt}{(t - 4)^2}$$

Evaluate the following integrals

$$\int \sqrt{t}(t^2 + 3t + 2)\, dt$$

$$\int \sec t\,(\sec t + \tan t)\, dt$$

$$\int \sqrt[4]{x^5}\, dx$$

$$\int \frac{x + 2}{\sqrt{x^2 + 4x}}\, dx$$

$$\int \frac{x^3}{1 + x^4}\, dx$$

A particle moves along a line with velocity function $v(t) = t^2 - t$, where v is measured in meters per second. Find (a) the displacement and (b) the distance traveled by the particle during the time interval $[0, 5]$.