Calculus

Name: Date:

4B Exercises

Formal Definition of the Integral

Evaluate the definite integral using the limit definition. Use $c_i = a + i\Delta x$ and $\Delta x = \frac{b-a}{n}$

3. $\int_2^6 8\,dx$

4. $\int_{-2}^3 x\,dx$

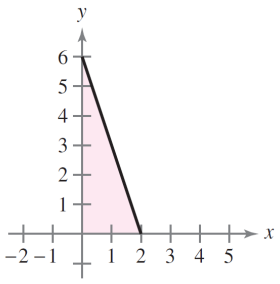
6. $\int_1^4 4x^2\,dx$

7. $\int_1^2 (x^2 + 1)\,dx$

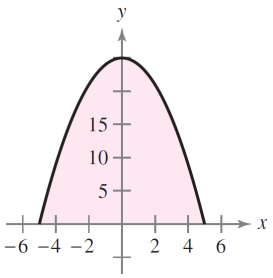
Larson section 4.3

Write a definite integral that defines the area of the region (don't evaluate)

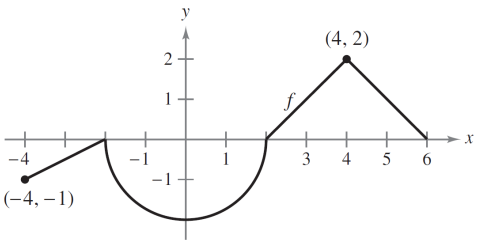
14. $f(x) = 6 - 3x$



17. $f(x) = 25 - x^2$



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



(a) $\int_0^2 f(x)\,dx$ (b) $\int_2^6 f(x)\,dx$ (c) $\int_{-4}^2 f(x)\,dx$

(d) $\int_{-4}^6 f(x)\,dx$ (e) $\int_{-4}^6 |f(x)|\,dx$ (f) $\int_{-4}^6 [f(x) + 2]\,dx$