

Lesson 30 Worksheet

April 6, 2018

Evaluate the following definite integrals by using geometric formulas:

1. $\int_1^5 -1 \, dx$
2. $\int_{-5}^{-1} -1 \, dx$
3. $\int_1^5 2x - 2 \, dx$
4. $\int_1^5 x + 3 \, dx$
5. $\int_{-1}^1 \sqrt{1 - x^2} \, dx$

Solve the following problems:

6. If $\int_0^4 1 \, dx = 4$, $\int_0^4 x \, dx = 8$, and $\int_0^4 x^3 \, dx = 64$, compute $\int_0^4 \frac{1}{8}x^3 - x - 3 \, dx$.
7. If $\int_0^4 f(x) \, dx = 7$ and $\int_0^1 f(x) \, dx = 8$, find $\int_1^4 f(x) \, dx$.
8. If $\int_0^4 g(x) \, dx = 7$ and $\int_0^1 g(x) \, dx = -8$, find $\int_1^4 g(x) \, dx$.
9. If $\int_{-7}^{-2} f(x) \, dx = 2$, $\int_{-9}^{-4} f(x) \, dx = -3$, and $\int_{-9}^{-2} f(x) \, dx = 10$, find $\int_{-4}^{-7} f(x) \, dx$.

Answers:

1. -4

2. -4

3. 16

4. 24

5. $\frac{\pi}{2}$

6. -12

7. -1

8. 15

9. 9