Chapter 5 Practice Quiz–Calculus

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Express the limit as a definite integral.

1) $\lim_{n\to\infty} \sum_{k=1}^{n} (3 c_k^2 - 6c_k + 16)\, \triangle x_k, \quad [-9, 2]$

1) _____

Graph the integrand and use areas to evaluate the integral.

2) $\int_{-4}^{2} (-2x + 4)\, dx$

2) _____

3) $\int_{-4}^{4} \sqrt{16 - x^2}\, dx$

3) _____

4) $\int_{-4}^{5} |x|\, dx$

4) _____

5) $\int_{2}^{\sqrt{17}} r\, dr$

5) _____

Use areas to evaluate the integral.

6) $\int_{a}^{3a} x\, dx, \qquad a > 0$

6) _____

7) $\int_{0}^{b} 6x\, dx, \qquad b > 0$

7) _____

Express the desired quantity as a definite integral and evaluate the integral.

8) A snail travels at 0.7 feet/min for 2 minutes. How far does it travel?

8) _____

Solve the problem.

9) Suppose that $\int_{6}^{8} f(x)\, dx = -2$. Find $\int_{1}^{1} f(x)\, dx$ and $\int_{8}^{6} f(x)\, dx$.

9) _____

10) Suppose that $\int_{-4}^{-1} g(t)\, dt = 6$. Find $\int_{-4}^{-1} \frac{g(x)}{6}\, dx$ and $\int_{-1}^{-4} -g(t)\, dt$.

10) _____

11) Suppose that f and g are continuous and that $\displaystyle\int_3^7 f(x)\,dx = -2$ and $\displaystyle\int_3^7 g(x)\,dx = 8$.   11) _____

Find $\displaystyle\int_3^7 \left[4f(x) + g(x)\right]\,dx$.

Evaluate the definite integral.

12) $\displaystyle\int_0^\pi 6 \sin x\,dx$ 12) _____

13) $\displaystyle\int_{-2}^{-1} 2x^{-4}\,dx$ 13) _____

Find the average value over the given interval.

14) $y = 3 \sin x$; $[0, \pi]$ 14) _____

15) $y = x^2 - 6x + 3$; $[0, 2]$ 15) _____

1) $\displaystyle\int_{-9}^{2} (3x^2 - 6x + 16)\, dx$

2) 36

3) 8π

4) $\dfrac{41}{2}$

5) $\dfrac{13}{2}$

6) $4a^2$

7) $3b^2$

8) $\displaystyle\int_{0}^{2} 0.7\, dt$; 1.4 ft

9) 0; 2

10) 1; 6

11) 0

12) 12

13) $\dfrac{7}{12}$

14) $\dfrac{6}{\pi}$

15) $-\dfrac{5}{3}$