

Chapter 7 Practice Test- Calculus

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

The function $v(t)$ is the velocity in m/sec of a particle moving along the x -axis. Determine when the particle is moving to the right, to the left, and stopped.

1) $v(t) = 9 \sin t, 0 \leq t \leq 2\pi$ 1) _____

A) Right: $0 \leq t < \frac{\pi}{2}, \frac{3\pi}{2} < t \leq 2\pi$

B) Right: $0 < t \leq \pi$

Left: $\frac{\pi}{2} < t < \frac{3\pi}{2}$

Left: $\pi < t < 2\pi$

Stopped: $t = 0, 2\pi$

Stopped: $t = \frac{\pi}{2}, \frac{3\pi}{2}$

C) Right: $0 \leq t < \frac{\pi}{2}, \pi \leq t < \frac{3\pi}{2}$

D) Right: $0 < t < \pi$

Left: $\frac{\pi}{2} < t < \pi, \frac{3\pi}{2} < t < 2\pi$

Left: $\pi < t < 2\pi$

Stopped: $t = 0, \pi, 2\pi$

Stopped: $t = \frac{\pi}{2}, \frac{3\pi}{2}$

Solve the problem.

2) The velocity in m/sec of a particle moving along the x -axis is given by the function 2) _____

$v(t) = 5 \cos 3t, 0 \leq t \leq \pi/2$

Find the particle's displacement for the given time interval.

A) $-\frac{5}{3}$

B) 0

C) $\frac{5}{3}$

D) -5

The function $v(t)$ is the velocity in m/sec of a particle moving along the x -axis. Find the total distance traveled by the particle.

3) $v(t) = 3 \sin 4t, 0 \leq t \leq \pi$ 3) _____

A) 0

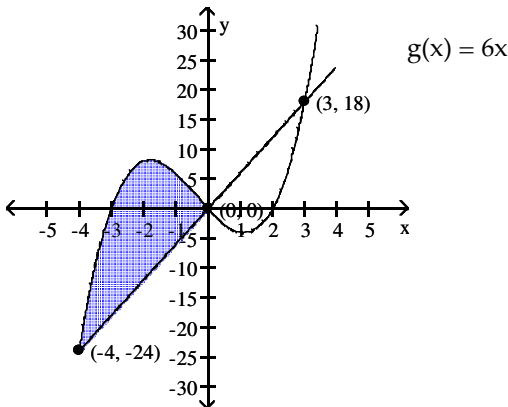
B) 3

C) 12

D) 6

Find the area of the shaded region.

4) $f(x) = x^3 + x^2 - 6x$ 4) _____



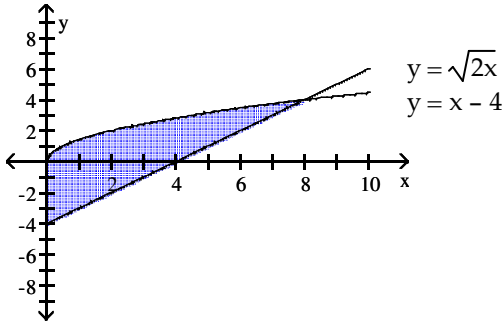
A) $\frac{343}{12}$

B) $\frac{81}{12}$

C) $\frac{160}{3}$

D) $\frac{768}{12}$

5)



A) 32

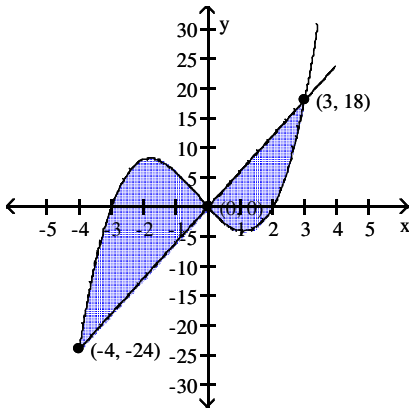
B) $\frac{32}{3}$

C) $\frac{64}{3}$

D) $\frac{128}{3}$

5) _____

6) $f(x) = x^3 + x^2 - 6x$, $g(x) = 6x$



A) $\frac{937}{12}$

B) $\frac{343}{12}$

C) $\frac{768}{12}$

D) $\frac{81}{12}$

6) _____

Find the area enclosed by the given curves.

7) Find the area of the region in the first quadrant bounded on the left by the line $x = \frac{\pi}{6}$ and on the right by the curves $y = \tan^2 x$ and $y = \cot^2 x$. (Round to four decimal places.)

A) 4.3094

B) 0.3094

C) 0.4126

D) 0.5858

7) _____

Find the volume of the solid generated by revolving the region bounded by the given lines and curves about the x-axis.

8) $y = \sqrt{25 - x^2}$, $y = 0$, $x = 0$, $x = 5$

A) 100π

B) $\frac{250}{3}\pi$

C) 10π

D) $\frac{500}{3}\pi$

8) _____

9) $y = 4\csc x$, $y = 0$, $x = \frac{\pi}{4}$, $x = \frac{3\pi}{4}$

A) 16π

B) 48π

C) 8π

D) 32π

9) _____

10) $y = 7\csc x$, $y = 7\sqrt{2}$, $\frac{\pi}{4} \leq x \leq \frac{3\pi}{4}$

A) $49\pi^2 - 98\pi$

B) $49\pi^2 + 98\pi$

C) $7\pi^2 - 49\pi$

D) $\pi^2 + 14\pi$

10) _____

11) $y = \frac{5}{x}, y = -x + 6$

11) _____

A) 72π

B) 16π

C) $\frac{64}{3}\pi$

D) 20π

Find the volume of the solid generated by revolving the region about the given line.

12) The region in the first quadrant bounded above by the line $y = 3$, below by the line $y = \frac{3x}{5}$, and on the left by the y -axis, about the line $y = 3$

12) _____

A) 15π

B) $\frac{15}{2}\pi$

C) 25π

D) 105π

Use the shell method to find the volume of the solid generated by revolving the region bounded by the given curves and lines about the y -axis.

13) $y = x^2, y = 3 + 2x$, for $x \geq 0$

13) _____

A) $\frac{45}{2}\pi$

B) $\frac{135}{2}\pi$

C) $\frac{135}{4}\pi$

D) $\frac{45}{4}\pi$

Find the exact length of the curve analytically by antidifferentiation.

14) $x = \frac{1}{3}y^{3/2} - y^{1/2}$ from $x = 16$ to $x = 25$

14) _____

A) 32

B) $\frac{64}{3}$

C) $\frac{61}{3}$

D) 20

15) $y = \int_1^x \sqrt{7t^4 - 1} dt, -2 \leq x \leq 3$

15) _____

A) $35\sqrt{7}$

B) $\frac{35\sqrt{7}}{3}$

C) 385

D) 49

Answer Key

Testname: CHAPTER 7 CALCULUS PRACTICE TEST

- 1) D
- 2) A
- 3) D
- 4) C
- 5) C
- 6) A
- 7) B
- 8) B
- 9) D
- 10) A
- 11) C
- 12) A
- 13) A
- 14) B
- 15) B