

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

**Solve the problem.**

- 1) Given the acceleration, initial velocity, and initial position of a body moving along a coordinate line at time  $t$ , find the body's position at time  $t$ . 1) \_\_\_\_\_

$a = 9.8, v(0) = 17, s(0) = 13$

A)  $s = 9.8t^2 + 17t + 13$

B)  $s = -4.9t^2 - 17t + 13$

C)  $s = 4.9t^2 + 17t$

D)  $s = 4.9t^2 + 17t + 13$

- 2) After a new firm starts in business, it finds that its rate of profits (in hundreds of dollars per year) after  $t$  years of operation is given by  $\frac{dP}{dt} = 3t^2 + 2t + 3$ . Find the profit in year 3 of the operation. 2) \_\_\_\_\_

A) \$1800

B) \$2700

C) \$3150

D) \$3900

**Find the area enclosed by the given curves.**

- 3)  $y = \frac{1}{2}x^2, y = -x^2 + 6$  3) \_\_\_\_\_

A) 4

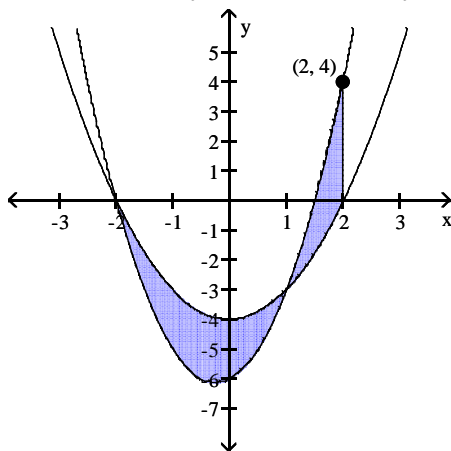
B) 8

C) 16

D) 32

**Find the area of the shaded region.**

- 4)  $y = 2x^2 + x - 6, y = x^2 - 4$  4) \_\_\_\_\_



A)  $\frac{11}{6}$

B)  $\frac{8}{3}$

C)  $\frac{9}{2}$

D)  $\frac{19}{3}$

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

- 5)  $y = \frac{1}{x}, y = 0, x = 1, x = 2$  5) \_\_\_\_\_

A)  $\frac{3}{2}\pi$

B)  $\frac{1}{2}\pi$

C)  $\frac{1}{4}\pi$

D)  $\pi \ln 2$

- 6)  $y = x^2 + 3, y = 2x + 3$  6) \_\_\_\_\_

A)  $\frac{184}{15}\pi$

B)  $8\pi$

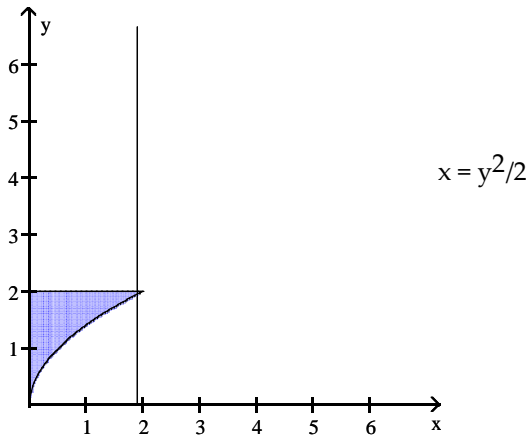
C)  $\frac{52}{15}\pi$

D)  $\frac{112}{5}\pi$

Use the shell method to find the volume of the solid generated by revolving the shaded region about the indicated axis.

7) About the x-axis

7) \_\_\_\_\_



- A)  $2\pi$                       B)  $4\pi$                       C)  $\frac{8}{3}\pi$                       D)  $8\pi$

Find the volume of the solid generated by revolving the region about the given axis. Use the shell or washer method.

8) The triangle with vertices (0, 0), (0, 2), and (4, 2) about the line  $x = 4$

8) \_\_\_\_\_

- A)  $\frac{80}{3}\pi$                       B)  $\frac{64}{3}\pi$                       C)  $\frac{32}{3}\pi$                       D)  $\frac{16}{3}\pi$

9) The region bounded by  $y = 7\sqrt{x}$ ,  $y = 7$ , and  $x = 0$  about the line  $y = 7$

9) \_\_\_\_\_

- A)  $\frac{49}{2}\pi$                       B)  $\frac{49}{12}\pi$                       C)  $\frac{49}{6}\pi$                       D)  $\frac{49}{3}\pi$

10) The region bounded by  $y = 6x - x^2$  and  $y = x$  about the line  $x = 5$

10) \_\_\_\_\_

- A)  $\frac{625}{8}\pi$                       B)  $\frac{625}{6}\pi$                       C)  $\frac{625}{4}\pi$                       D)  $\frac{625}{12}\pi$

Find the length of the curve.

11)  $y = 3x^{3/2}$  from  $x = 0$  to  $x = \frac{5}{9}$

11) \_\_\_\_\_

- A) 1                      B)  $\frac{335}{243}$                       C)  $\frac{335}{162}$                       D)  $\frac{335}{3}$

12)  $x = \frac{2}{3}(y - 1)^{3/2}$  from  $y = 4$  to  $y = 9$

12) \_\_\_\_\_

- A) 19                      B)  $\frac{38}{3}$                       C)  $\frac{31}{3}$                       D) 2                      E)  $\frac{57}{2}$

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

13)  $y = 9 - x^2$ ,  $y = 9$ ,  $x = 3$ ; revolve about the line  $y = 9$

13) \_\_\_\_\_

- A)  $9\pi$                       B)  $\frac{243}{5}\pi$                       C)  $\frac{648}{5}\pi$                       D)  $\frac{567}{5}\pi$

## Answer Key

Testname: MATH 76\_LP3

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