

Name _____

SHORT ANSWER. Write the word or phrase that best completes each 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) $v(t) = e^{\cos t} \sin t$, $0 \leq t \leq 2\pi$

1) _____

Solve the problem.

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

2) _____

$v(t) = 2 \cos^2 t \sin t$, $0 \leq t \leq \pi$

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

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) $v(t) = 4 \cos t$, $0 \leq t \leq 2\pi$

3) _____

4) $v(t) = t^2 - 7t + 12$, $0 \leq t \leq 4$

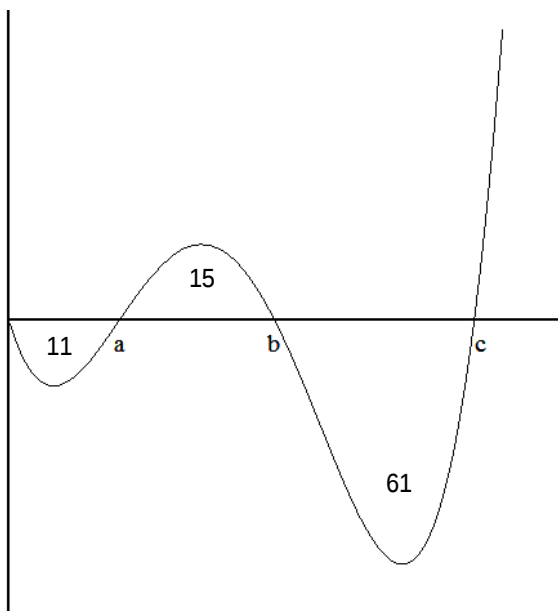
4) _____

Solve the problem.

5) A particle moves along the x-axis (units in cm). Its initial position at $t = 0$ sec is $x(0) = 14$.

5) _____

The figure shows the graph of the particle's velocity $v(t)$. The numbers are the areas of the enclosed regions.



What is the particle's displacement between $t = 0$ and $t = c$?

- 6) A surveyor measured the length of a piece of land at 100-ft intervals (x), as shown in the table. Use the Trapezoidal Rule to estimate the area of the piece of land in square feet.

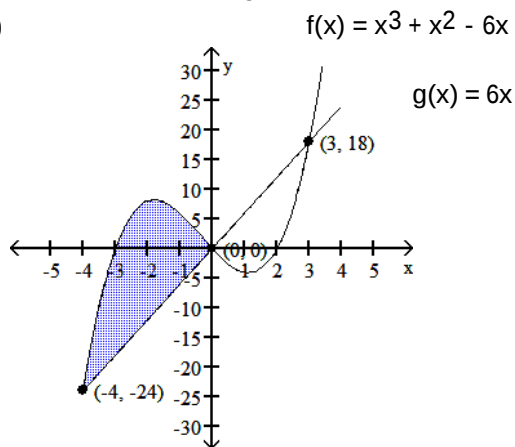
6) _____

x	Length (ft)
0	45
100	55
200	75
300	50
400	45

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

Find the area of the shaded region.

7)

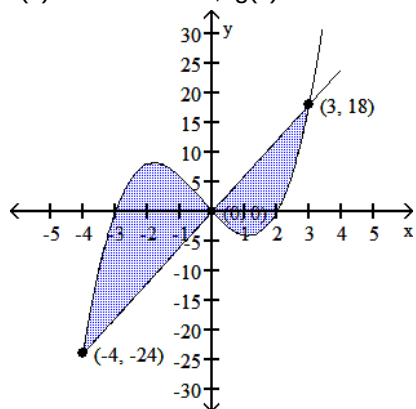


7) _____

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

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

8) _____



Find the area of the regions enclosed by the lines and curves.

9) $y = x^2 - 3$ and $y = 13$

9) _____

Find the area enclosed by the given curves.

- 10) Find the area of the region in the first quadrant bounded by the line $y = 8x$, the line $x = 1$, the curve $y = \frac{1}{\sqrt{x}}$, and the x-axis.

10) _____

Find the area of the regions enclosed by the lines and curves.

- 11) $x = 2y^2 - 2$, $x - y^2 = 7$

11) _____

Find the area of the region(s) enclosed by the given curves.

- 12) $y = -4\sin x$, $y = \sin 2x$, $0 \leq x \leq \pi$

12) _____