Right $v(t) > 0$

$(0, \pi/2)$

$(\frac{3\pi}{2}, 2\pi)$

Left $v(t) < 0$

$(\frac{\pi}{2}, \pi)$

$(\pi, \frac{3\pi}{2})$

5. The function $v(t) = \sin^2 t \cos t$ is the velocity in m/sec of a particle moving along the x-axis from $[0, 2\pi]$. Use your calculator to answer the following.

a) Determine when the particle is stopped and when the particle is moving to the right and left.

$x = 0, 1.570, 3.1415, 4.712 \rightarrow$ stopped

$\frac{\pi}{2}$ π $\frac{3\pi}{2}$

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

$$\int_0^{2\pi} v(t) =$$

c) If $s(0) = 3$, what is the particle's final position?

$$3 + \int_0^{2\pi} v(t)\,dt =$$

d) Find the total distance traveled by the particle.

$$\int_0^{2\pi} |v(t)|\,dt =$$

10. The function $\mathbf{v(t) = (t - 2)\sin t}$ is the velocity in m/sec of a particle moving along the x-axis from $[0, 4]$. Use your calculator to answer the following.

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

$$\int_0^4 (t-2)(\sin t)\,dt$$

b) Find the total distance traveled by the particle.

$$\int_0^4 |v(t)|\,dt =$$

A) The rate of potato consumption for a particular country was:

$C(t) = 2.2 + 1.1^t$

$t = 0$

where t is the number of years since 1970 and C is in millions of bushels per year.

Determine the amount of potatoes consumed from the beginning of 1972 to the end of 1973.

Amount (Total)

$\int_2^3 |C(t)| = 3.469$ million bushels

B) The electrical power consumption (measured in kilowatts) at a factory t hours after midnight during a typical day is modeled by

Rate → $E(t) = 300(2 - \cos(\pi t / 12))$

How many kilowatt hours of electrical energy does the company consume in a typical day.

Total

$\int_0^{24} |E(t)|\, dt =$