a) Find the peak-to-peak voltage of \( v(t) \).

b) Find the frequency of \( v(t) \).

c) Find the phase shift of \( v(t) \).

**Solution:**

a) The peak-to-peak voltage is the max \( V(t) \) minus the min \( V(t) \):

\[
V_{pk-pk} = 20V - 0V = 20V
\]

b) The period of \( v(t) \) is the time between peaks.

\[
T = 30\mu s - 10\mu s = 40\mu s
\]

Frequency is the inverse of the period:

\[
f = \frac{1}{T} = \frac{1}{40\mu s} = 25\text{ kHz}
\]

c) The phase shift is determined by how far the peak is shifted from \( t=0 \).

\[
\phi = \frac{\Delta t \cdot 360^\circ}{T} = \frac{-10\mu s \cdot 360^\circ}{40\mu s} = -90^\circ
\]