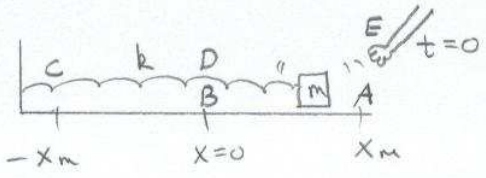


or

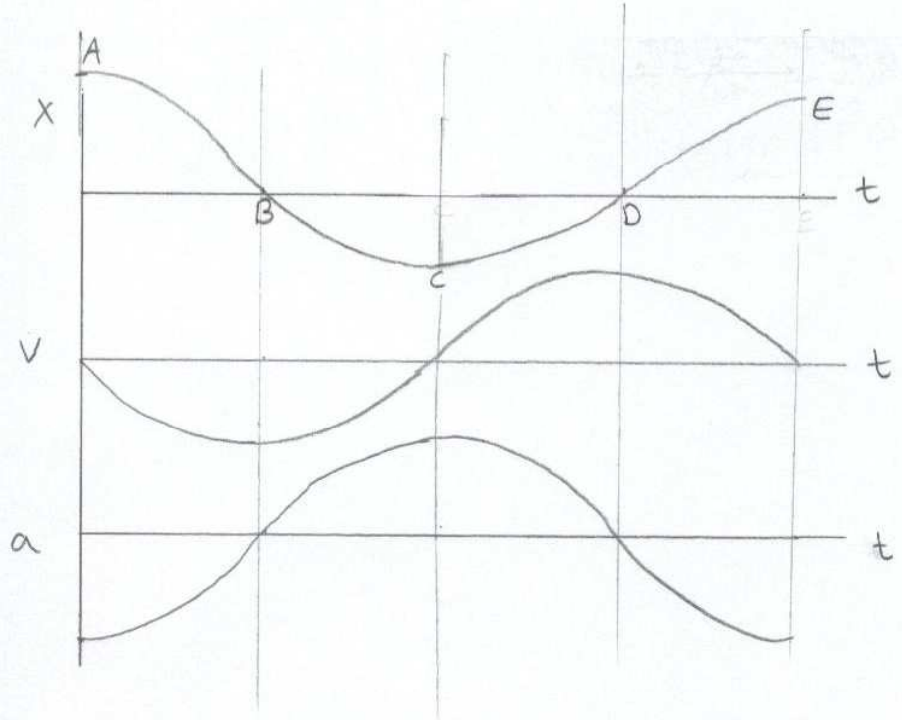
Plot x, v, a vs. t for 1 period ABCDE

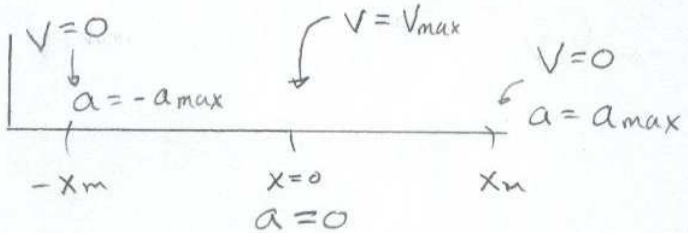
Initial condition: $x = x_m$ @ $t=0$

$\therefore x = x_m \cos\omega t$ $\quad v = \frac{dx}{dt}$ $\quad$ so $\quad v = \underbrace{-\omega x_m}_{v_m} \sin\omega t$

$v = -v_m \sin\omega t$ $\quad a = \frac{dv}{dt}$ $\quad$ so $\quad a = \underbrace{-\omega^2 x_m}_{a_m} \cos\omega t$

$a = -a_m \cos\omega t$





Where is $K = U$?