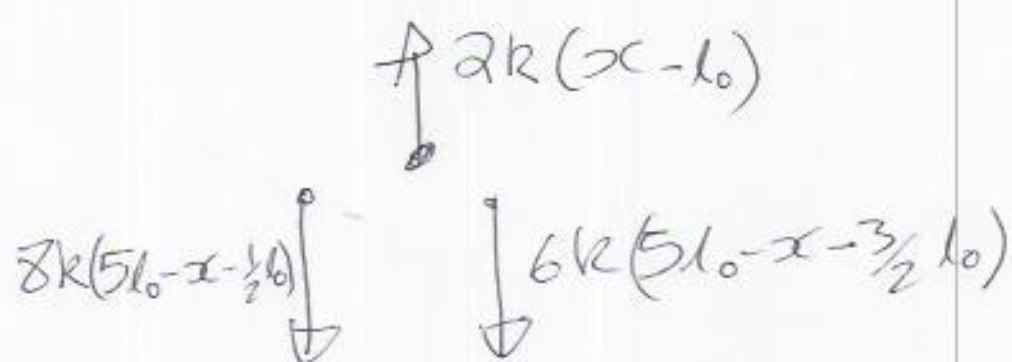


4) a)



b)

AP	x	l_0	$x - l_0$	$2k$
BP	$5l_0 - x$	$\frac{1}{2}l_0$	$\frac{9}{2}l_0 - x$	$8k$
CP	$5l_0 - x$	$\frac{3}{2}l_0$	$\frac{7}{2}l_0 - x$	$6k$

c) Apply $F = ma$. ($\uparrow +ve$)

$$2k(x - l_0) - 8k(5l_0 - x - \frac{1}{2}l_0) - 6k(5l_0 - x - \frac{3}{2}l_0) = m\ddot{x}$$

d) $\ddot{x} = 0 \Rightarrow x = \frac{59l_0}{16}$

~~d) $x = \frac{59l_0}{16} + A \cos(4\sqrt{\frac{k}{m}}t) + B \sin(4\sqrt{\frac{k}{m}}t)$~~

e) $\ddot{x} = 0$ $x = -\frac{7l_0}{2}$ $\dot{x} = 0$

$t = 0, x = -\frac{7l_0}{2} \Rightarrow -\frac{7l_0}{2} = -\frac{59l_0}{16} + A \Rightarrow A = \frac{59l_0}{16} - \frac{7l_0}{2}$

$t = 0, \dot{x} = 0 \Rightarrow B = 0$