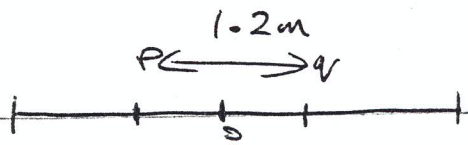
1486Q6



Time $p \to q$ = 3secs.

Velocity at p same as at q $\Rightarrow$ dist $|op| = |oq| = \cdot 6m$.

and time to go op = time to oq

= 1·5secs.

Time to go from q to extreme and back to q is . 3secs

Time to go from q to extreme E is 1·5secs.

$\therefore$ Time to go from o to E is

time oq + time qE.

= 1·5 + 1·5

= 3secs.

$\therefore$ Time to do a complete oscillation is · (OE time) 4

= 12secs..

$\therefore \cdot T = \frac{2\pi}{\omega} \Rightarrow$ $\boxed{\omega = \frac{2\pi}{12} = \frac{\pi}{6}}$.

$\therefore \quad x = A\sin\omega t \Rightarrow \cdot 6 = A\sin\left(\frac{\pi}{6} 1.5\right)$ for not on from o to q

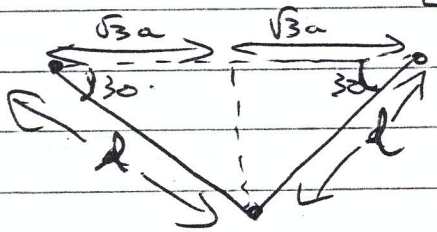
$\Rightarrow \cdot 6 = A\sin\left(\frac{\pi}{4}\right)$

$\cdot 6 = A\left(\frac{1}{\sqrt{2}}\right)$

$(\cdot 6\sqrt{2}) = A$

$\boxed{\cdot 849_m = A}$

(k)



Find l_0 Elastic string natural length 2a

$\Rightarrow$ Each half of string has natural length a.

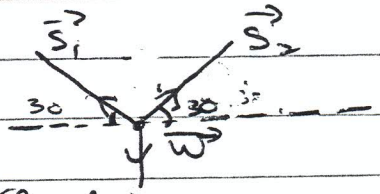
Find l: $A\hat{l}_{oo}$: $\cos 30 = \frac{\sqrt{3}a}{l}$

$\Rightarrow l = \frac{\sqrt{3}a}{\cos 30}$

$\Rightarrow l = \frac{\sqrt{3}a}{\frac{\sqrt{3}}{2}}$

$\Rightarrow \boxed{l = 2a}$.

forces :



$S = k(l - l_0)$

$S = k(l - a)$

$\Rightarrow S = k(2a - a)$

$S = ka$.

$\vec{S_1} = -S\cos 30\vec{i} + S\sin 30\vec{j}$.

$= -ka\frac{\sqrt{3}}{2}\vec{i} + \frac{ka}{2}\vec{j}$

$\vec{S_2} = S\cos 30\vec{i} + S\sin 30\vec{j}$.

$= ka\frac{\sqrt{3}}{2}a\vec{i} + \frac{ka}{2}\vec{j}$.

$\vec{W} = -W\vec{j}$

Equil $\Rightarrow \Sigma F = 0$ in $\vec{j}$ dirn.

$\Rightarrow +\frac{ka}{2} + \frac{ka}{2} - W = 0$

$\Rightarrow ka = W$

$\Rightarrow$ Modulus $\boxed{\lambda = W}$