Forced Oscillation

driving frequency

$\omega \approx \omega_0 (\approx \omega_1)$

$\sqrt{\frac{k}{m}}$

$\beta^2 < \omega_1^2$

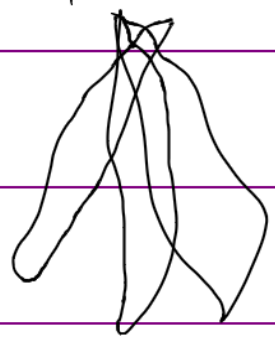
$\omega_1 \approx \omega_0$

response ↑

$x(t)$

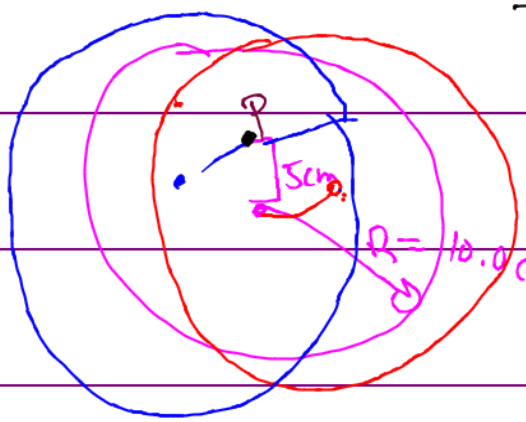
ω far away ω_0 ✓ response ↓

$2\pi\sqrt{\frac{L}{g}}$

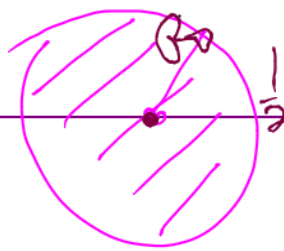


$I = mL^2$

$T = ?$



$T = 2\pi \sqrt{\frac{mgL}{I}}$) $2\pi \sqrt{\frac{I}{mgL}}$



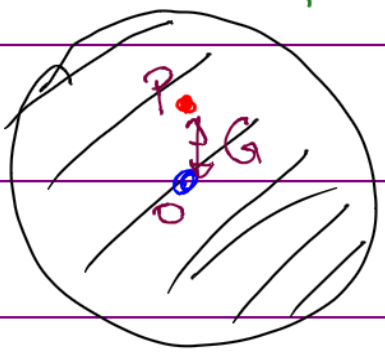
$\frac{1}{2} mR^2 = I$

$I = \int r^2 dm \rightarrow \frac{1}{2} MR^2$

$T = 6.28 \sqrt{\frac{\frac{3}{4} MR^2}{Mgr}}$ $r = R$

$I = ? = \frac{3}{4} MR^2$

$L = ? = R/2$



$T = 6.28 \sqrt{\frac{0.15}{9.8}}$

$G = R/2$

$T = 6.77 s$

0.78 s

$I_p = I_{CM} + MG^2$

$= \frac{1}{2} MR^2 + M(R/2)^2$

$= 0.75\,MR^2 = \frac{3}{4}MR^2$