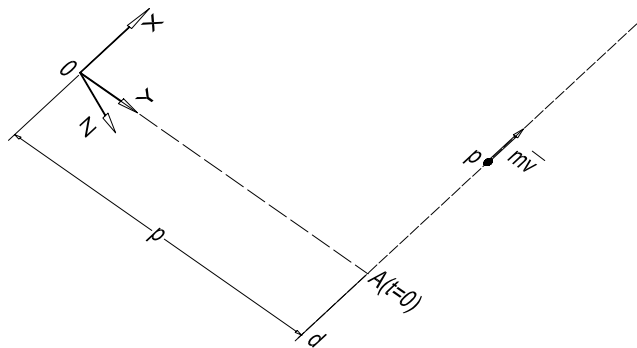## Oefening 10:

kinetisch moment:

$$\overline{M}_0 = \overline{OP} \times m\overline{V}_P = (\overline{OA} + \overline{AP}) \times m\overline{V}_P$$

$$= \overline{OA} \times m\overline{V}_P + \underbrace{\overline{AP} \times m\overline{V}_P}_{=0 \text{ want } //}$$

$$\overline{OA} = (0, P, 0) \quad ; \quad \overline{V}_P = (\dot{X}, 0, 0)$$

$$\Rightarrow \overline{M}_0 = \begin{vmatrix} \overline{1}_x & \overline{1}_y & \overline{1}_z \\ 0 & P & 0 \\ m\dot{X} & 0 & 0 \end{vmatrix} = -m\dot{X}P\overline{1}_z$$

$\underline{\dot{X}?}$
P is éénparig versneld :

$$\ddot{X} = a$$

$$\dot{X} = at + \overbrace{V_0}^{=0} = at$$

$$X = \frac{at^2}{2} + \overbrace{X_0}^{=0}$$

$$X = \frac{at^2}{2} \Rightarrow t = \sqrt{\frac{2X}{a}}$$

$$\Rightarrow \dot{X} = \sqrt{2aX}$$

$$\Rightarrow M_0 = -mP\sqrt{2aX}\ \overline{1}_Z$$