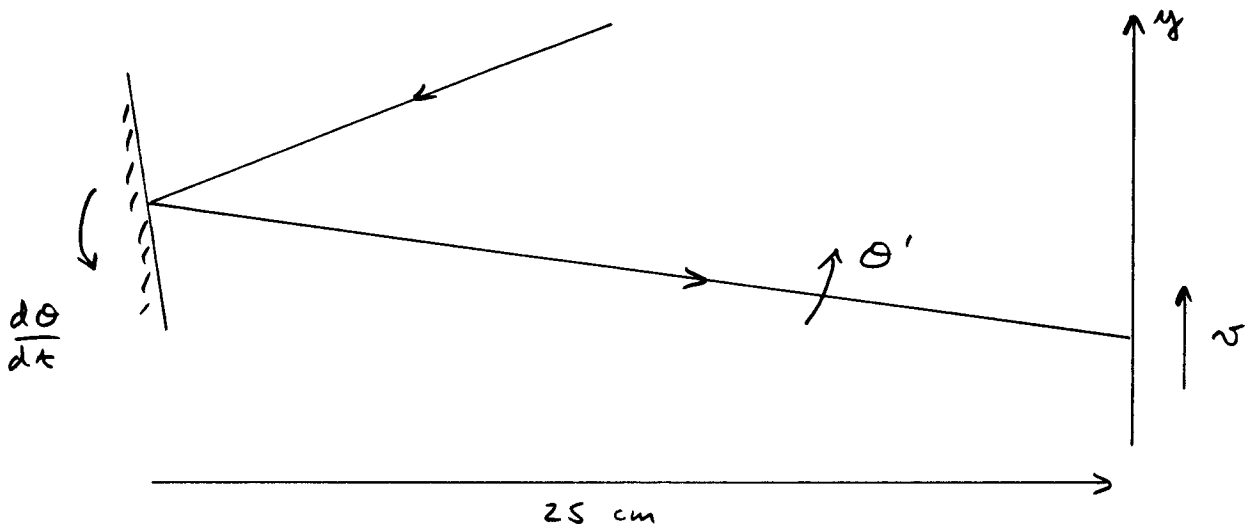


Laser Scanner

The required spot velocity is 100 cm/sec

We can assume that the mirror pivots at the point of reflection.

The reflected beam angle  $\theta'$  rotates twice as fast as the mirror angle  $\theta$ :

$$\frac{d\theta'}{dt} = 2 \frac{d\theta}{dt}$$

Beam spot location:

$$y = y_0 + L \theta'$$

small angles  
 $y_0 = \text{const}$

$$v = \frac{dy}{dt} = L \frac{d\theta'}{dt} = 2L \frac{d\theta}{dt}$$

$$\frac{d\theta}{dt} = \frac{v}{2L} = \frac{100 \text{ cm/sec}}{2 \cdot 25 \text{ cm}}$$

$$\frac{d\theta}{dt} = 2 \text{ rad/sec} = 114^\circ/\text{sec}$$