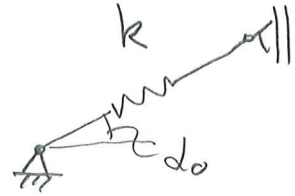
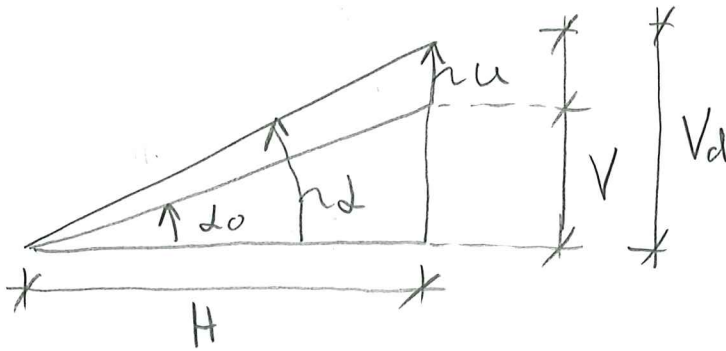


# Slanted spring / truss

63



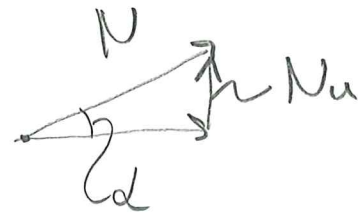
$$V_d = V + u$$

$$L_o = \sqrt{H^2 + V^2}$$

$$L_d = \sqrt{H^2 + (V+u)^2}$$

$$N = k(L_d - L_o)$$

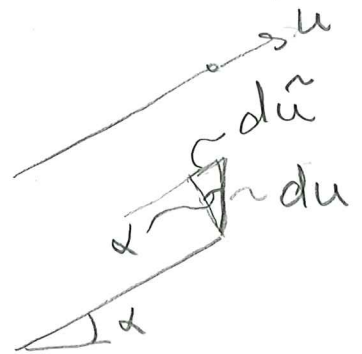
$$N_u = N_{\text{send}} = N \frac{V_d}{L_d}$$



$$dN_u = \underbrace{\frac{\partial N_u}{\partial u} \sin d \, du}_{(1)} + \underbrace{N \frac{\partial \sin d}{\partial d} \frac{\partial d}{\partial u} \, du}_{(2)} = k \, du \sin d$$

$$\frac{\partial N}{\partial u} = \frac{\partial N}{\partial d} \frac{\partial d}{\partial u} = k \sin d$$

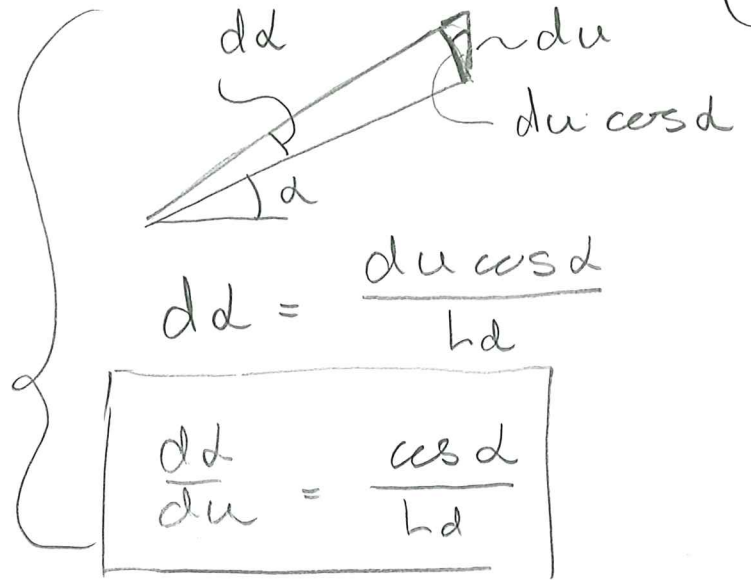
$$(1) \frac{\partial N}{\partial u} \sin d = k \sin^2 d$$



(3)

$$\frac{\partial \text{send}}{\partial d} = \cos d$$

$$\frac{\partial d}{\partial u}$$



$$(2) \quad N \frac{\partial \text{send}}{\partial d} \frac{\partial d}{\partial u} = N \cos d \frac{\cos d}{h_d}$$

$$dN_u = \frac{\partial N_u}{\partial u} du = \underbrace{\left( \overset{(1)}{k \sin^2 d} + N \overset{(2)}{\frac{1}{h_d} \cos^2 d} \right)}_K du$$

## 2 DOF EXAMPLE

