

In[14]:= $Iz = 5696 / 100\,000\,000 // N$

Out[14]= 0.00005696

In[15]:= $(* E = 2 \cdot 10^8 \text{ kN/m}^2, Iz = 0.00005696 \text{ m}^4 *)$

In[16]:= $EI = 2.0 \cdot 10^8 * Iz // N$

Out[16]= 11392.

In[17]:= $Pcr = (2.0 \cdot 10^8 * \pi^2 * Iz) / (4 * 4^2)$

Out[17]= 1756.79

In[18]:= $L = 8; h = 4; Kh = 10; Kv = 1000; N1 = 1000.0; Ng = 5.0; Nd = 1000.0;$

In[19]:= $M12 = \left(\frac{3 * EI}{h^2} - \frac{N1}{5} \right) * u$

Out[19]= 1936. u

In[20]:= $M43 = \left(\frac{3 * EI}{h^2} - \frac{Nd}{5} \right) * u$

Out[20]= 1936. u

In[21]:= $(*Jednadzba virtualnog rada...*)$

In[22]:= $(M12) * \frac{u}{h} + (M43) * \frac{u}{h} + \left(-Kh * u - Kv * u * 2 * \frac{u}{h} \right)$

Out[22]= $-10 u + 468. u^2$

In[23]:= $Solve \left[\left\{ (M12) * \frac{u}{h} + (M43) * \frac{u}{h} + \left(-Kh * u - Kv * u * 2 * \frac{u}{h} \right) = 0 \right\}, \{u\} \right]$

Out[23]= $\{\{u \rightarrow 0.\}, \{u \rightarrow 0.0213675\}\}$

In[24]:= $(*Momenti u cvorovima...*)$

In[25]:= $M12 /. \{u \rightarrow 0.021367521367521368\}$

Out[25]= 41.3675

In[26]:= $M43 /. \{u \rightarrow 0.021367521367521368\}$

Out[26]= 41.3675