

$$O_4 = \dots \quad \sum M_4^d = 0 \quad M_{4,0} + O_4 \cdot h_4 - H \cdot y_4 = 0$$

$$O_4 = -\frac{M_{4,0}}{h_4} + H \frac{y_4}{h_4} = -\frac{M_{4,0}}{4} + H \cdot \frac{6}{4}$$

$$(a) \quad O_{4,0} = -\frac{M_{4,0}}{4} = -\frac{8}{4} = -2 \quad \frac{3}{2} H^{(a)} = \frac{3}{2} \cdot 8 = 12$$

$$(b) \quad O_{4,0} = -\frac{M_{4,0}}{4} = -\frac{1 \cdot 28}{4} = -7 \quad \frac{9,5}{4} H^{(b)} = \frac{3}{2} (-8) = -12$$

$$h_4 = 3 + 8 \cdot \operatorname{tg} \alpha_4$$

$$\operatorname{tg} \alpha_4 = \frac{1,5}{12} = \frac{3}{24}$$

$$h_4 = 3 + 8 \cdot \frac{3}{24} = 4$$

$$y_4 = 4,5 + 4 \cdot \frac{3}{24} + 8 \cdot \frac{1}{8} = 6 \text{ m}$$

$$U_7 = \dots \quad \sum M_6^d = 0 \quad M_{6,0} - U_7 \cdot h_6 - H \cdot y_6 = 0$$

$$U_7 = \frac{M_{6,0}}{h_6} - H \frac{y_6}{h_6} = \frac{M_{6,0}}{3} - H \cdot \frac{11}{3}$$

$$(A) \quad U_{7,0} = \frac{M_{6,0}}{3} = \frac{16}{3} = 5,3^\circ \quad -\frac{11}{3} H^{(A)} = -\frac{11}{3} \cdot 8 = -29,3^\circ$$

$$(B) \quad U_{7,0} = \frac{M_{6,0}}{3} = \frac{20}{3} = 6,6^\circ \quad -\frac{11}{3} H^{(B)} = -\frac{11}{3} (-8) = 29,3^\circ$$

$$y_6 = 4,5 + 4,5 + 16 \cdot \frac{1}{8} = 11$$

$$h_6 = 3$$

$$D_9 = \dots \quad \sum M_9^d = 0 \quad M_{9,0} + O_9 \cdot h_9 \cdot \cos 39^\circ + D_9 \cdot h_9 \cos 89^\circ - H \cdot y_9 = 0$$

$$D_9 = \frac{1}{\cos 89^\circ} \left(-\frac{M_{9,0}}{h_9} - O_9 \cos 39^\circ + H \frac{y_9}{h_9} \right)$$

$$O_9 = \dots \quad \sum M_8^d = 0 \quad M_{8,0} + O_9 \cdot h_8 \cdot \cos 39^\circ - H \cdot y_8 = 0$$

$$O_9 = \frac{1}{\cos 39^\circ} \left(-\frac{M_{8,0}}{h_8} + H \frac{y_8}{h_8} \right) \quad y_8 = 8 \cdot \frac{6}{12} + 24 \cdot \frac{1}{8} = 7 \text{ m}$$

$$D_9 = \frac{1}{\cos 89^\circ} \left(-\frac{M_{9,0}}{h_9} - \frac{\cos 39^\circ}{\cos 39^\circ} \left(-\frac{M_{8,0}}{h_8} + H \frac{y_8}{h_8} \right) + H \frac{y_9}{h_9} \right) \quad y_{(8)} = 13,5 - \frac{1}{8} \cdot 12 - 4 \cdot \frac{3}{16} = 11,25 \text{ m}$$

$$y_9 = 4 \cdot \frac{6}{12} + 28 \cdot \frac{1}{8} = 5,5$$

$$D_9 = \frac{1}{\cos 89^\circ} \left(-\frac{M_{9,0}}{h_9} + \frac{M_{8,0}}{h_8} + H \left(\frac{y_9}{h_9} - \frac{y_8}{h_8} \right) \right) \quad y_{(9)} = 13,5 - 8 \cdot \frac{3}{16} - 8 \cdot \frac{1}{8} = 11 \text{ m}$$

$$D_9 = \frac{\sqrt{113}}{8} \left(-\frac{M_{9,0}}{5,5} + \frac{M_{8,0}}{4,25} + H \left(\frac{5,5}{5,5} - \frac{7}{4,25} \right) \right) \quad h_9 = y_{(9)} - y_9 = 11 - 5,5 = 5,5$$

$$h_8 = y_{(8)} - y_8 = 11,25 - 7 = 4,25$$

$$= \frac{\sqrt{113}}{8} \left(-\frac{M_{9,0}}{5,5} + \frac{M_{8,0}}{4,25} - \frac{2,75}{4,25} H \right)$$

$$\operatorname{tg} 39^\circ = \frac{3}{16} \quad \cos 39^\circ = \frac{16}{\sqrt{265}}$$

$$= \frac{\sqrt{113}}{8} \left(-\frac{M_{9,0}}{5,5} + \frac{M_{8,0}}{4,25} - \frac{2,75 \sqrt{113}}{34} H \right)$$

$$\operatorname{tg} 89^\circ = \frac{h_9 - 4 \cdot \frac{6}{12}}{4} = \frac{5,5 - 2}{4} = \frac{3,5}{4} = \frac{7}{8}$$

$$\cos 89^\circ = \frac{4}{8} = \frac{1}{2}$$