Verschuivend zwaartepunt

1. $d_T = \frac{3}{3+10} \cdot \frac{1}{2} \cdot 3 + \frac{10}{3+10} \cdot 5 \text{ cm} = 4{,}2 \text{ cm}$

2. $d_T = \frac{h}{h+10} \cdot \frac{1}{2} \cdot h + \frac{10}{h+10} \cdot 5 = \frac{\frac{1}{2} \cdot h^2}{h+10} + \frac{50}{h+10} = \frac{h^2}{2h+20} + \frac{100}{2h+20} = \frac{h^2+100}{2h+20}$

3. $\frac{h^2+100}{2h+20} = 4{,}5 \qquad h^2 - 9h + 10 = 0$

$h = \frac{9 \pm \sqrt{81-40}}{2} \Rightarrow h = 4\frac{1}{2} - \frac{1}{2}\sqrt{41} \text{ v } h = 4\frac{1}{2} + \frac{1}{2}\sqrt{41}$

$\frac{h^2+100}{2h+20} - 4{,}5 < 0$ $\qquad$ + (1,3) − (7,7) +

$d_T < 4{,}5 \qquad 1{,}3 < h < 7{,}7$

4. $d_T' = \frac{2h(2h+20) - 2(h^2+100)}{(2h+20)^2} = \frac{2h^2+40h-200}{(2h+20)^2}$

$d_T' = 0 \qquad h^2 + 20h - 100 = 0 \quad \wedge \quad (2h+20)^2 \neq 0$

$h = \frac{-20 \pm \sqrt{400+400}}{2} \Rightarrow h = -10 - \sqrt{200} \vee h = -10 + \sqrt{200}$

Minimale afstand $\qquad h = -10 + \sqrt{200}$