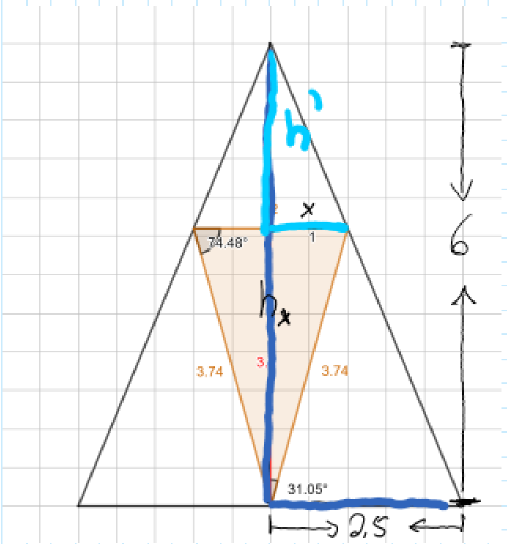
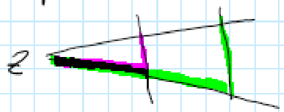
121, 1



a) $V = \frac{1}{3} \cdot A_G \cdot h$ wobei $A_G = (2{,}5\,cm)^2 \cdot \pi$

Bestimme zunächst h_1 mithilfe des „Vierstreckensatz"

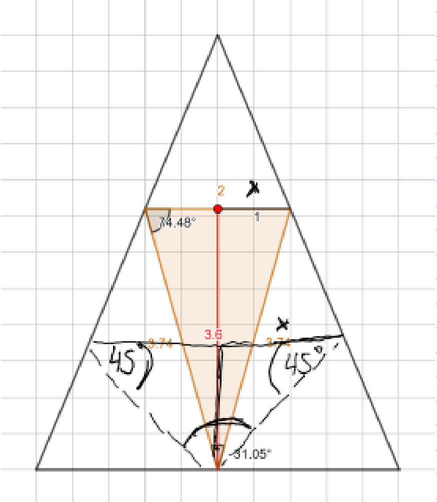


$$\frac{6cm}{2{,}5cm} = \frac{h'}{1cm} \qquad h' = \frac{6cm \cdot 1cm}{2{,}5cm} = 2{,}4\,cm$$

somit ist $h_1 = 6cm - 2{,}4cm = 3{,}6\,cm$

$$V_1 = \frac{1}{3} \cdot (2{,}5cm)^2 \cdot \pi \cdot 3{,}6cm = 3{,}77\,cm^3$$

b) $\frac{6\,cm}{2{,}5cm} = \frac{h_x'}{x\,cm}$ $\quad h_x' = \frac{6cm \cdot x\,cm}{2{,}5cm} = 2{,}4\,x\,cm$; $h = 6cm - 2{,}4\,x\,cm = (-2{,}4x + 6)\,cm$



c) $h_x = x$

$$6\,cm - 2{,}4x\,cm = x\,cm \quad | + 2{,}4\,x\,cm$$
$$6\,cm = 3{,}4\,x\,cm \quad | : 3{,}4\,cm$$
$$1{,}76 = x$$

e) $V_{(x)} = \frac{1}{3} \cdot x^2 \cdot \pi \cdot (-2{,}4x + 6)\ cm^3$

$$= \frac{1}{3} \cdot \left(-\frac{24}{10}\right) x^2 \pi \,(x - 2{,}5)\ cm^3$$

$$= -\frac{8}{10} \cdot x^2 \cdot \pi \,(x - 2{,}5)\ cm^3$$

$$= -0{,}8\,\pi\, x^2 \,(x - 2{,}5)\ cm^3 \quad \checkmark$$