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Opgave 193

$$d = 100$$

$$r = \frac{d}{2} = \frac{100}{2} = 50$$

$$\emptyset = 50$$

$$V_{f\emptyset r} = \frac{4}{3} \cdot \pi \cdot r^3$$

$$V_{f\emptyset r} = \frac{4}{3} \cdot \pi \cdot 50^3 \quad | \text{Indsæt tal}$$

$$V_{f\emptyset r} = \frac{4}{3} \cdot \pi \cdot 1250000 \quad | \text{Potens}$$

$$V_{f\emptyset r} = 523598.8 \quad | \text{Gange}$$

$$h_2 = \sqrt{r^2 - \left(\frac{\emptyset}{2}\right)^2}$$

$$h_2 = \sqrt{50^2 - \left(\frac{50}{2}\right)^2} \quad | \text{Indsæt tal}$$

$$h_2 = \sqrt{50^2 - 25^2} \quad | \text{Brøk}$$

$$h_2 = \sqrt{2500 - 625} \quad | \text{Potens}$$

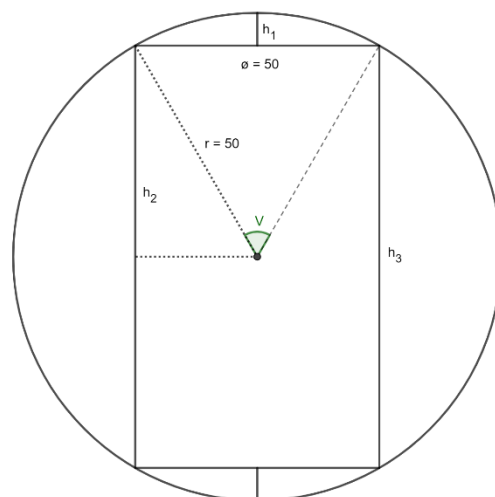
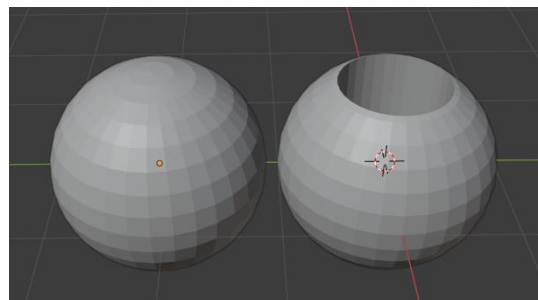
$$h_2 = \sqrt{1875} \quad | \text{Minus}$$

$$h_2 = 43.3 \quad | \text{Kvrod}$$

$$h_3 = h_2 \cdot 2$$

$$h_3 = 43.3 \cdot 2 \quad | \text{Indsæt tal}$$

$$h_3 = 86.6 \quad | \text{Gange}$$



Find V

V må være 60 fordi det er en ligesidet trekant

$$V = 60^\circ$$

Find h_1

$$h_1 = r \cdot \left(1 - \cos \frac{V}{2}\right)$$

$$h_1 = 50 \cdot \left(1 - \cos \frac{60}{2}\right) \quad | \text{Indsæt tal}$$

$$h_1 = 50 \cdot (1 - \cos 45) \quad | \text{Udregn brøk}$$

$$h_1 = 50 \cdot (1 - 0.707) \quad | \text{Cos}$$

$$h_1 = 50 \cdot 0.293 \quad | \text{Minus}$$

$$h_1 = 14.65 \quad | \text{Gange}$$

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Find arealet vi skal trække fra cirkelens areal

$$V_{cyl} = \pi \cdot \left(\frac{\emptyset}{2}\right)^2 \cdot h_3$$

$$V_{cyl} = \pi \cdot \left(\frac{50}{2}\right)^2 \cdot 86.6 \quad | \text{Indsæt tal}$$

$$V_{cyl} = \pi \cdot 25^2 \cdot 86.6 \quad | \text{Udregn brøk}$$

$$V_{cyl} = \pi \cdot 625 \cdot 86.6 \quad | \text{Potens}$$

$$V_{cyl} = 170038.7 \quad | \text{Gange}$$

$$V_{kalot} = \frac{\pi}{6} \cdot h_1^2 \cdot (3d - 2h_1)$$

$$V_{kalot} = \frac{\pi}{6} \cdot 14.65^2 \cdot (3 \cdot 100 - 2 \cdot 14.65) \quad | \text{Indsæt tal}$$

$$V_{kalot} = \frac{\pi}{6} \cdot 214.62 \cdot (3 \cdot 100 - 2 \cdot 14.65) \quad | \text{Potens}$$

$$V_{kalot} = \frac{\pi}{6} \cdot 214.62 \cdot (300 - 29.3) \quad | \text{Gange}$$

$$V_{kalot} = \frac{\pi}{6} \cdot 214.62 \cdot 270.7 \quad | \text{Minus}$$

$$V_{kalot} = 30419.85 \quad | \text{Gange}$$

$$V = V_{cyl} + V_{kalot}$$

$$V = 170038.7 + 30419.85 \quad | \text{Indsæt tal}$$

$$V = 200458.55 \quad | \text{Plus}$$

Udregn areal efter cylinder er trukket fra

$$V_{efter} = V_{før} - V$$

$$V_{efter} = 523598.8 - 200458.55 \quad | \text{Indsæt tal}$$

$$V_{efter} = 323140.25 \quad | \text{Minus}$$

Udregn procent fald

$$\%_{fald} = 100 - \frac{V_{efter} \cdot 100}{V_{før}}$$

$$\%_{fald} = 100 - \frac{323140.25 \cdot 100}{523598.8} \quad | \text{Indsæt tal}$$

$$\%_{fald} = 100 - \frac{32314025}{523598.8} \quad | \text{Gange}$$

$$\%_{fald} = 100 - 61.71 \quad | \text{Brøk}$$

$$\%_{fald} = 38.29 \% \quad | \text{Minus}$$