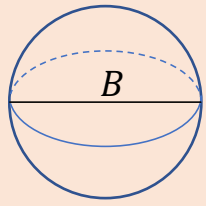


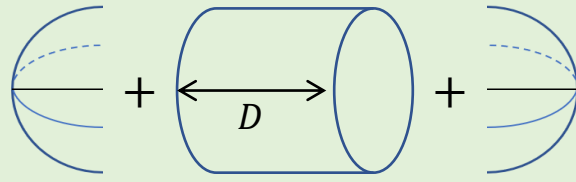
Stap 1

Volume Bol

$$V = \frac{\pi}{6} B^3$$



Stap 2: Bol rolt horizontaal of knip vertikaal de bol en verschuif horizontaal

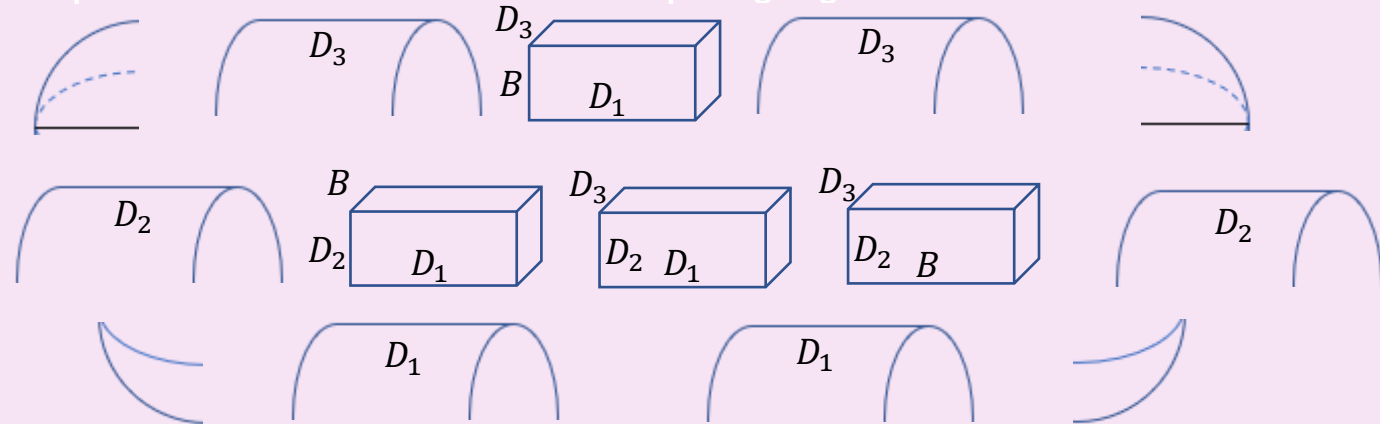


$$\begin{aligned} V &= V_{\text{Bol}} + V_{\text{cilinder}} \\ &= \frac{\pi}{6} B^3 + \frac{\pi}{4} B^2 D \end{aligned}$$

Stap 3: Bol rolt horizontaal en verticaal of knip vorige figuur horizontaal en verschuif vertikaal

$$\begin{aligned} V &= V_{\text{Bol}} + V_{\text{Cilinder1}} + V_{\text{Cilinder2}} + V_{\text{Balk}} \\ &= \frac{\pi}{6} B^3 + \frac{\pi}{4} B^2 (D_1 + D_2) + D_1 D_2 B \end{aligned}$$

Stap 4: Bol rolt in de drie dimensies of knip vorige figuur in de derde dimensie en verschuif volgens de diepte over een afstand D_3



$$\begin{aligned} V &= V_{\text{Bol}} + V_{\text{Cilinder1}} + V_{\text{Cilinder2}} + V_{\text{Cilinder3}} \\ &\quad + V_{\text{Balk}_1} + V_{\text{Balk}_2} + V_{\text{Balk}_3} + V_{\text{InwendigeBalk}} \\ &= \frac{\pi}{6} B^3 + \frac{\pi}{4} B^2 (D_1 + D_2 + D_3) \\ &\quad + B(D_1 D_2 + D_2 D_3 + D_1 D_3) + D_1 D_2 D_3 \end{aligned}$$