Aufgabe 2)

$r = 10/2$ $\quad V = 471m$

$$V(h) = \frac{\pi h^2 (3R - h)}{3}$$

$$V(h) = \frac{\pi \cdot h^2}{3} \cdot (3 \cdot 5 - h)$$

$$f(h) = \pi/3 (15h^2 - h^3) - 471$$

$$f'(h) = \pi/3 (2 \cdot 15 \cdot h - 3h^2)$$

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

```
In [8]: %runfile /Users/sivashan/Documents/SEM_3/H_MM_M_1/LE06/Sivashan/newtonVerfahrenAufgabe2.py --wdir
Iteration 1: x = 9, f(x) = 37.93800988154646, f'(x) = 28.274333882308134
Iteration 2: x = 7.658217376951713, f(x) = -20.094514506173994, f'(x) = 56.34094684233909
Iteration 3: x = 8.014876532191067, f(x) = -1.1098102527953415, f'(x) = 49.984371162311014
Iteration 4: x = 8.037079677434038, f(x) = -0.004680726030755977, f'(x) = 49.56222762056493
Iteration 5: x = 8.037174118831357, f(x) = -8.510124871463631e-08, f'(x) = 49.56042541133086
Result is: 8.037174118831357
```