$tol = 0.000001$

$x_0 = 1$

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

$r = 1m$ , $V = 0.75m^3$

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

$$f'(h) = \frac{1}{3}\left[2\pi h(3r - h) + \pi h^2(-1)\right] - 0$$

$$f'(h) = \frac{2\pi h(3r - h) - \pi h^2}{3} = \frac{6\pi h - 2\pi h^2}{3} = \frac{\pi}{3}(6h - 2h^2)$$

Newton:

iteración 1:

$x_1 = x_0 - (f(x_0)/f'(x_0))$

$x_1 = 1 - (1.344395/\pi)$

$x_1 = 0.5720657$

$E = |x_0 - x_1| = 0.4279343$

iteración 2:

$x_2 = x_1 - (f(x_1)/f'(x_1))$

$x_2 = 0.5720657 - (0.08206521/2.566279)$

$x_2 = 0.5400874$ $E = 0.0319783$

iteración 3:

$x_3 = 0.5400874 - (0.001408988/2.477084)$

$x_3 = 0.5395185$

$E = (0.5400874 - 0.5395185) = 0.0005689$

iteración 4:

$x_4 = 0.5395185 - (0.0000002433/2.780257)$

$x_4 = 0.5395184$

$E = |0.5395185 - 0.5395184| = 0.0000001$ ✓