$$\lim_{h\to 0} \frac{\sqrt[3]{h+1}-1}{h} = \frac{0}{0}$$, PRECISA MANIPULAR

DIFERENÇA DE CUBOS

$$a^3 - b^3 = (a-b)(a^2+ab+b^2)$$

SE, $a = \sqrt[3]{h+1}$ E $b = 1$,

ENTÃO

$$a - b = \sqrt[3]{h+1} - 1$$

$$a^3 = \left(\sqrt[3]{h+1}\right)^3 = h+1 \Rightarrow a^3 - b^3 = (h+1) - 1 = h$$

$$b^3 = 1^3 = 1$$

PORTANTO $h = (\sqrt[3]{h+1} - 1)\left(\left(\sqrt[3]{h+1}\right)^2 + \sqrt[3]{h+1} \cdot 1 + 1^2\right)$

AO ISOLAR $\sqrt[3]{h+1} - 1$ TEMOS

$$\sqrt[3]{h+1} - 1 = \frac{h}{\left(\left(\sqrt[3]{h+1}\right)^2 + \sqrt[3]{h+1} \cdot 1 + 1^2\right)} = \lim_{x\to 0} \frac{\dfrac{h}{\left(\left(\sqrt[3]{h+1}\right)^2 + \sqrt[3]{h+1} \cdot 1 + 1^2\right)}}{h}$$

APÓS CANCELAR h,

$$\frac{1}{\left(\sqrt[3]{h+1}\right)^2 + \sqrt[3]{h+1} \cdot 1 + 1^2} = \frac{1}{1^2 + 1 + 1^2} = \frac{1}{3}$$