$f(x) = x^3$

$\rightarrow \quad f(0) = 0^3 = 0 \qquad (0|0)$

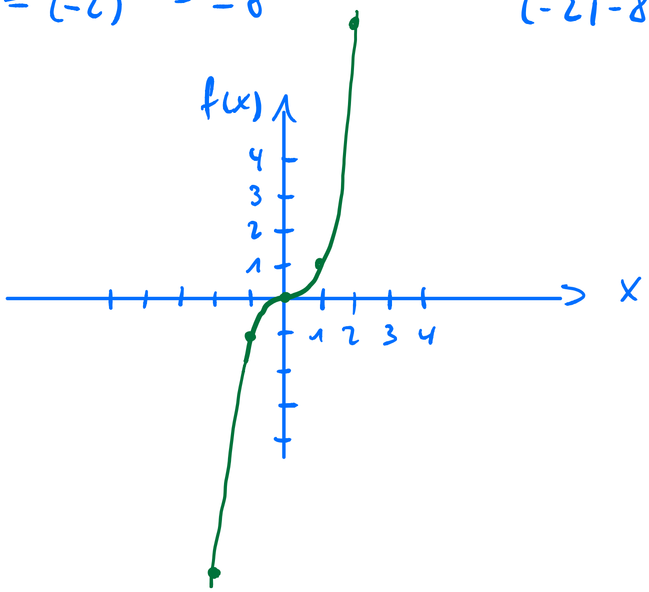
$f(1) = 1^3 = 1 \qquad (1|1)$

$f(-1) = (-1)^3 = -1 \qquad (-1|-1)$

$f(2) = 2^3 = 8 \qquad (2|8)$

$f(-2) = (-2)^3 = -8 \qquad (-2|-8)$

$\vdots$




$s(t) = 20 - 5t^2$

$s(-1) = 20 - 5 \cdot (-1)^2 = 20 - 5 = \underline{\underline{15}}$

$s(0) = 20 - 5 \cdot 0^2 = \underline{\underline{20}}$

$s(1) = 20 - 5 \cdot 1^2 = \underline{\underline{15}}$

$s(t) = 0 = 20 - 5t^2 \quad | + 5t^2$

$\Rightarrow \quad 5t^2 = 20 \quad | :5$

$t^2 = 4 \quad | \sqrt{\ }$

$t = \underline{\underline{\pm 2}}$

$$s(2) - s(1) = 20 - 5\cdot 2^2 - (20 - 5\cdot 1^2) = 0 - 15 = \underline{\underline{-15}}$$

$$\frac{s(3) - s(1)}{2} = \frac{20 - 5\cdot 3^2 - (20 - 5\cdot 1^2)}{2} = \frac{-25 - 15}{2} = \underline{\underline{-20}}$$

$$\frac{s(2+h) - s(2)}{h} = \frac{20 - 5\cdot(2+h)^2 - (20 - 5\cdot 2^2)}{h}$$

$$= \frac{20 - 5\cdot(4 + 4h + h^2)}{h} = \frac{20 - 20 - 20h - 5h^2}{h}$$

$$= \frac{-20h - 5h^2}{h} = \frac{-5h(4+h)}{h} = \underline{\underline{-5(4+h)}}$$

$$-5(4+h) \xrightarrow{h \to 0} (-5)\cdot 4 = \underline{\underline{-20}}$$

$$N(t) = a\cdot b^t \quad , \quad N(0) = 10 \quad , \quad N(2) = 6.4$$

$$N(0) = a\cdot b^0 = a = \underline{\underline{10}} \quad \to \quad N(t) = 10\cdot b^t$$

$$N(2) = 10\cdot b^2 = 6.4 \quad / :10$$

$$b^2 = 0.64 \quad / \sqrt{\phantom{x}}$$

$$b = \underline{\underline{\pm 0.8}}$$

$$\to \quad N(t) = 10\cdot 0.8^t$$

($-0.8$ ist für eine Funktion nonsense)

$$N(1) = 10\cdot 0.8^1 = \underline{\underline{8}} \quad , \quad N(-2) = 10\cdot 0.8^{-2} = 10\cdot \frac{1}{0.64} = \underline{\underline{\frac{25}{16}}}$$

$$\left(\frac{4}{5}\right)^{-2} = \left(\frac{5}{4}\right)^2 = \frac{25}{16}$$

$$\frac{N(2) - N(0)}{2} = \frac{6.4 - 10}{2} = \frac{-3.6}{2} = \underline{\underline{-1.8}}$$

$$\frac{N(3)-N(1)}{2} = \frac{10\cdot 0.8^3 - 8}{2} = \underline{\underline{-1.44}}$$

$$\frac{N(t+h)-N(t)}{h} = \frac{10\cdot 0.8^{t+h} - 10\cdot 0.8^{t}}{h} = \underline{\underline{\frac{10\cdot 0.8^{t}\left(0.8^{h}-1\right)}{h}}}$$