b)

$f(x) = \frac{1}{2}x - \frac{1}{2} + \frac{8}{x+1}$

$f(x)$ NEW
$f'(x)$ NEW
$f''(x)$ NE

$f'(x) = \frac{1}{2} + \frac{u' \cdot v - v' \cdot u}{v^2} = \frac{1}{2} + \frac{0 \cdot (x+1) - 1 \cdot 8}{(x+1)^2}$

$= \frac{1}{2} + \frac{-8}{(x+1)^2} = \frac{1}{2} - \frac{8}{(x+1)^2}$

$f'(x) = 0$

$\frac{1}{2} - \frac{8}{(x+1)^2} = 0 \quad | + \frac{8}{(x+1)^2}$

$\frac{1}{2} = \frac{8}{(x+1)^2}$

$0{,}5 = \frac{8}{(x+1)^2} \quad | \cdot (x+1)^2$

$0{,}5 \cdot (x+1)^2 = 8 \quad | : 0{,}5$

$(x+1)^2 = 16 \quad | \sqrt{}$

$x+1 = \pm\sqrt{16} \quad | -1$

$x = \pm\sqrt{16} - 1$

$x = \pm 4 - 1$

$x_1 = 3 \qquad x_2 = -5$

$f(3) = \frac{1}{2} \cdot 3 - \frac{1}{2} + \frac{8}{3+1} = 3 \Rightarrow E_1(3|3)$

$f(-5) = \frac{1}{2} \cdot (-5) - \frac{1}{2} + \frac{8}{(-5)+1} = -5 \Rightarrow E_2(-5|-5)$

$f''(x) = -\frac{0 \cdot (x+1)^2 - 8 \cdot 2(x+1) \cdot 1}{((x+1)^2)^2} = \frac{16\cancel{(x+1)}}{(x+1)^{\cancel{4}}}$

$= \frac{16}{(x+1)^3}$

$f''(3) = \frac{16}{(3+1)^3} = \frac{1}{4} > 0 \longrightarrow E_1(3|3)$ Tiefpunkt

$f''(-5) = \frac{16}{(-5+1)^3} = -\frac{1}{4} < 0 \longrightarrow E_2(-5|-5)$ Hochpunkt