Z.C.2.2.24.

$$y' = \frac{y^2 - 1}{x^2 - 1}, \quad y(2) = 2.$$

Separabel

a) Konstantlösningar: $y = \pm 1.$

Uppfyller ej villkoret.

b) $y \neq \pm 1:\ \dfrac{1}{y^2 - 1} y' = \dfrac{1}{x^2 - 1}$

$$\frac{1}{2}\left(\frac{-1}{y+1} + \frac{1}{y-1}\right) y' = \frac{1}{2}\left(\frac{-1}{x+1} + \frac{1}{x-1}\right)$$

Integrera map x:

$$-\ln|y + 1| + \ln|y - 1| = -\ln|x + 1| + \ln|x - 1| + \ln|C_1|$$

$$\frac{y - 1}{y + 1} = \pm C_1 \frac{x - 1}{x + 1} = C_2 \frac{x - 1}{x + 1}$$

$$y(2) = 2 \qquad C_2 = 1$$

$$(y - 1)(x + 1) = (y + 1)(x - 1)$$

$$xy + y - x - 1 = xy - y + x - 1$$

$$2y = 2x, \quad y = x$$