

$$a^{-b} = \frac{1}{a^b}$$

2465

(a)  $y = x + \frac{9}{x} = x + 9 \cdot \frac{1}{x^1} = x + 9x^{-1}$

Då får vi

$$y' = 1 + 9 \cdot (-1)x^{-1-1} = 1 - 9x^{-2} = 1 - 9 \cdot \frac{1}{x^2} = 1 - \frac{9}{x^2}$$

Sätt nu  $y' = 0$ :

$$1 - \frac{9}{x^2} = 0$$

$$1 = \frac{9}{x^2}$$

$$x^2 = 9$$

$$x = \pm \sqrt{9}$$

$$x = \pm 3$$

Svar:  $x_1 = -3, x_2 = 3$

(b)  $y = e^{2x} - x$

Derivatan:

$$y' = 2e^{2x} - 1$$

Sätt nu  $y' = 0$ :

$$2e^{2x} - 1 = 0$$

$$2e^{2x} = 1$$

$$e^{2x} = 0,5$$

$$\ln e^{2x} = \ln 0,5$$

$$2x \ln e = \ln 0,5$$

$$x = \frac{\ln 0,5}{2} \approx -0,347$$

Svar:  $x = \frac{\ln 0,5}{2}$