

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

2333

$$f(x) = 3\sqrt{x} - \frac{5}{\sqrt{x}} = 3 \cdot x^{\frac{1}{2}} - \frac{5}{x^{\frac{1}{2}}} = 3x^{\frac{1}{2}} - 5x^{-\frac{1}{2}}$$

$$f'(x) = 3 \cdot \left(\frac{1}{2}\right) x^{\frac{1}{2}-1} - 5 \cdot \left(-\frac{1}{2}\right) x^{-\frac{1}{2}-1}$$

$$-\frac{1}{2} - 1 = -\frac{1}{2} - \frac{2}{2} = -\frac{3}{2}$$

$$= \frac{3}{2} \cdot x^{-\frac{1}{2}} + \frac{5}{2} x^{-\frac{3}{2}} = 1,5x^{-\frac{1}{2}} + 2,5x^{-\frac{3}{2}}$$

$$= \frac{3}{2} \cdot \frac{1}{x^{\frac{1}{2}}} + \frac{5}{2} \frac{1}{x^{\frac{3}{2}}}$$

$$= \frac{3}{2\sqrt{x}} + \frac{5}{2x\sqrt{x}}$$

$$\begin{aligned} x^{\frac{3}{2}} &= x^{1+\frac{1}{2}} \\ &= x^1 \cdot x^{\frac{1}{2}} \\ &= x \cdot \sqrt{x} \end{aligned}$$

Man kan svära på olika sätt här