

$$e \approx 2,718$$

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$$\begin{aligned} \text{a) } f'(1) \quad \text{om} \quad f(x) &= 3 \cdot e^{5x} \\ f'(x) &= 3 \cdot e^{5x} \cdot 5 \\ &= 15 e^{5x} \\ f'(1) &= 15 e^{5 \cdot 1} \\ &\approx 2226 \\ &\approx 2230 \end{aligned}$$

$$\begin{aligned} \text{b) } f'(4) \quad \text{om} \quad f(x) &= 11 e^{0,3x} \\ f'(x) &= 11 e^{0,3x} \cdot 0,3 \end{aligned}$$

$$\begin{aligned} f'(4) &= 11 e^{0,3 \cdot 4} \cdot 0,3 \\ &= 3,3 e^{1,2} \\ &= 10,95 \\ &= 11,0 \end{aligned}$$

$$\begin{aligned} \text{c) } f'(\pi) \quad f(x) &= 2 \cdot e^{-x} \\ &= 2 \cdot e^{-x} \cdot (-1) \\ &= -2 \cdot e^{-x} \end{aligned}$$

$$\begin{aligned} f(\pi) &= -2 \cdot e^{-\pi} \\ \text{med } e \approx 2,718 &\approx -0,08645 \\ &\approx -0,0865 \\ \text{med räknedosans } e^x &= -2 \cdot e^{-\pi} \\ &= -0,08642 \\ &\approx -0,0864 \quad R \end{aligned}$$

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$$d) f'(1/3) \quad \text{om } f(x) = 6 \cdot e^{x/2}$$

$$f'(x) = 6 \cdot e^{x/2} \cdot \frac{1}{2}$$

$$= 3 \cdot e^{x/2}$$

$$f'(1/3) = 3 \cdot e^{1/6}$$

$$\approx 3 \cdot 2,718^{1/6}$$

$$\approx 3,544$$

$$\approx 3,54$$

$$\frac{1}{3} \cdot \frac{1}{2} = \frac{1}{6}$$

med räknaren

$$f'(1/3) = 3 e^{1/6}$$

$$= 3,544$$

$$\approx 3,54$$