

## Op gawe 5

$$f(x) = x^2 \cdot e^x$$

↑     ↑

$$\begin{aligned} f'(x) &= x^2 \cdot e^x + 2x \cdot e^x \\ &= x e^x (x + 2) \\ &= e^x (x^2 + 2x) \end{aligned}$$

## Produktregel

$$\begin{aligned} (f(x)g(x))' &= \\ f(x) \cdot g'(x) + f'(x)g(x) \end{aligned}$$

# Opgave b

$$f(x) = \ln(2x-4)$$

$$g(x) = 3x-1$$

$$\begin{aligned} \text{a) } \ln(2x-4) &= 0 \Leftrightarrow 2x-4 = 1 \Leftrightarrow \\ &2x = 1+4 \Leftrightarrow \\ &2x = 5 \Leftrightarrow \\ &x = \frac{5}{2} \end{aligned}$$

$$\text{b) } g(f(x)) = \underbrace{3(\ln(2x-4)) - 1}_{\uparrow} = \frac{3\ln(2x-4) - 1}{\ln(2x-4)^3 - 1}$$

$$\begin{aligned} c) (g(f(x)))' &= 3 \frac{1}{2x-4} \cdot 2 = \frac{6}{2x-4} \\ &= \frac{6 \cdot 3}{2(x-2)} \\ &= \frac{3}{x-2} \end{aligned}$$

















