

16 mit f

$$f(x) = \frac{11x-1}{(3x-1)(x+1)} = \frac{A}{3x-1} + \frac{B}{x+1} \quad \left| \cdot \begin{matrix} (3x-1) \\ (x+1) \end{matrix} \right.$$

$$11x-1 = A(x+1) + B(3x-1)$$

$$11x-1 = Ax + A + 3Bx - B$$

$$11x-1 = (A+3B)x + A-B$$

$$\text{I} \quad A+3B = 11$$

$$\text{II} \quad A-B = -1$$

$$\text{I} - \text{II} \quad \frac{4B = 12}{4}$$

$$B = 3$$

$$A-3 = -1$$

$$A = 2$$

$$\begin{aligned} \int \frac{11x-1}{(3x-1)(x+1)} dx &= \int \frac{2}{3x-1} dx + \int \frac{3}{x+1} dx \\ &= \frac{2}{3} \ln(|3x-1|) + 3 \ln(|x+1|) + C \end{aligned}$$

ode

$$\frac{11x-1}{(3x-1)(x+1)} = \frac{A}{3x-1} + \frac{B}{x+1} \quad \begin{array}{l} | \cdot (3x-1) \\ | \cdot (x+1) \end{array}$$

$$11x-1 = A(x+1) + B(3x-1)$$

$x = -1$ einsetzen

$$-12 = A \cdot 0 + B(-4)$$

$$3 = B$$

$x = \frac{1}{3}$ einsetzen

$$\frac{11}{3} - 1 = A\left(\frac{1}{3} + 1\right) + B \cdot 0$$

$$\frac{8}{3} = \frac{4}{3}A$$

$$2 = A$$

$$\Rightarrow \frac{11x-1}{(3x-1)(x+1)} = \frac{2}{3x-1} + \frac{3}{x+1}$$

$$\int \frac{2}{3x-1} dx + \int \frac{3}{x+1} dx = \frac{2}{3} \ln(|3x-1|) + 3 \ln(|x+1|) + C$$

$$\int \frac{11x-1}{(3x-1)(x+1)} dx$$

