

Find $\int \frac{7x-1}{2x^2-x-1} dx$

$$= \int \frac{7x-1}{(2x+1)(x-1)} dx$$

$$= \int \left(\frac{3}{2x+1} \right) dx + \int \left(\frac{2}{x-1} \right) dx$$

$$= \frac{3}{2} \ln|2x+1| + 2 \ln|x-1| + C$$

$$\frac{A}{2x+1} + \frac{B}{x-1}$$

$$= \frac{A(x-1) + B(2x+1)}{(2x+1)(x-1)}$$

$$= \frac{Ax - A + 2Bx + B}{(2x+1)(x-1)}$$

$$= \frac{(A+2B)x + B-A}{(2x+1)(x-1)}$$

$$A+2B = 7$$

$$B-A = -1$$

$$3B = 6$$

$$B = 2$$

$$A = B+1 = 2+1 = 3$$