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$$\int \frac{ax+b}{cx+d} dx$$

$$= \int \left[ \frac{a}{c} + \frac{(bc-ad)}{c(cx+d)} \right] dx$$

$$= \frac{a}{c}x + \frac{bc-ad}{c^2} \log(cx+d) + k$$

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$$\begin{array}{r} \frac{a}{c} \\ \hline cx+d \overline{) ax+b} \\ \underline{ax + \frac{ad}{c}} \\ b - \frac{ad}{c} = \frac{bc-ad}{c} \end{array}$$