$$\int \frac{2x^3+3x^2-8x-13}{x^2-4}\,dx$$

10-4

$$\begin{array}{r|cccc} & 2 & 3 & & \\ \hline 2 & 2 & 3 & -8 & -13 \\ & 2 & 0 & -8 & \\ \hline & 3 & 0 & -13 & \\ & 3 & 0 & -12 & \\ \hline & & & -1 & \end{array}$$

$$= \int \frac{(x^2-4)(2x+3)-1}{x^2-4}\,dx$$

$$= \int \left\{ (2x+3) - \frac{1}{x^2-4} \right\} dx$$

$$= \int \left\{ (2x+3) - \frac{1}{4}\left(\frac{1}{x-2} - \frac{1}{x+2}\right) \right\} dx$$

$$= x^2+3x - \frac{1}{4}\left\{ \log|x-2| - \log|x+2| \right\} + C \quad (C\text{は定数})$$

$$= \boxed{x^2+3x - \frac{1}{4}\log\left|\frac{x-2}{x+2}\right| + C \quad (C\text{は定数})}$$