54)

$$\int |2x-1|\,dx = \begin{cases} -x^2+x+K & si \quad x < \dfrac{1}{2} \\ x^2-x+C & si \quad x \geq \dfrac{1}{2} \end{cases}$$

$$y = |2x-1| = \begin{cases} 2x-1 & si \quad 2x-1 \geq 0 \\ -2x+1 & si \quad 2x-1 < 0 \end{cases} = \begin{cases} 2x-1 & si \quad x \geq \dfrac{1}{2} \\ -2x+1 & si \quad x < \dfrac{1}{2} \end{cases}$$

$$\int (2x-1)dx = x^2 - x + C$$

$$\int (-2x+1)dx = -x^2 + x + K$$

Para que el resultado sea una función continua,

$$\int |2x-1|\,dx = \begin{cases} -x^2+x+K & si \quad x < \dfrac{1}{2} \\ x^2-x+C & si \quad x \geq \dfrac{1}{2} \end{cases}$$

$$debe\ cumplirse: \quad -\left(\frac{1}{2}\right)^2 + \frac{1}{2} + K = \left(\frac{1}{2}\right)^2 - \frac{1}{2} + C; \quad \frac{1}{4} + K = -\frac{1}{4} + C; \quad C = \frac{1}{2} + K$$

$$\int |2x-1|\,dx = \begin{cases} -x^2+x+K & si \quad x < \dfrac{1}{2} \\ x^2-x+\dfrac{1}{2}+K & si \quad x \geq \dfrac{1}{2} \end{cases}$$