

$$\int \frac{x^2 - 2x + 1}{2x - 3} dx$$

INT-S1-038

SOSTITUZIONE $2x - 3 = z$

$$x = \frac{1}{2}z + \frac{3}{2}$$

$$x' = \frac{dx}{dz} = \frac{1}{2}$$

$$dx = \frac{1}{2} dz$$

$$= \int \frac{\left(\frac{1}{2}z + \frac{3}{2}\right)^2 - 2\left(\frac{1}{2}z + \frac{3}{2}\right) + 1}{z} \cdot \frac{1}{2} dz =$$

$$= \int \frac{\frac{1}{4}z^2 + \frac{9}{4} + \frac{6}{4}z - z - 3 + 1}{2z} dz =$$

$$= \int \frac{z^2 + 9 + 6z - 4z - 12 + 4}{8z} dz =$$

$$= \int \frac{z^2 + 2z + 1}{8z} dz =$$

$$= \frac{1}{8} \int z dz + \frac{2}{8} \int 1 dz + \frac{1}{8} \int \frac{1}{z} dz =$$

$$= \frac{1}{8} \cdot \frac{1}{2} z^2 + \frac{2}{8} z + \frac{1}{8} \ln|z| + k =$$

$$= \frac{1}{16} (2x-3)^2 + \frac{1}{4} (2x-3) + \frac{1}{8} \ln|2x-3| + k$$