$$\int \operatorname{sen}^3 x \cos^2 x \, dx =$$

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$$= \int \operatorname{sen}^2 x \cdot \operatorname{sen} x \cdot \cos^2 x \, dx =$$

$$= \int (1-\cos^2 x) \cdot \operatorname{sen} x \cdot \cos^2 x \, dx =$$

$$= \int \operatorname{sen} x \cdot \cos^2 x \, dx - \int \operatorname{sen} x \cdot \cos^4 x \, dx =$$

TIPO: $\int f'(x)\, f^n(x)\, dx = \frac{1}{n+1} f(x)^{n+1} + k$

SOSTITUZIONE: $\cos x = z$

NON ESPLICITO LA X

$$z = \cos x$$

$$z' = \frac{dz}{dx} = -\operatorname{sen} x$$

$$dx = -\frac{1}{\operatorname{sen} x} dz$$

$$= \int \cancel{\operatorname{sen} x} \cdot z^2 \left(-\frac{1}{\cancel{\operatorname{sen} x}}\right) dz - \int \cancel{\operatorname{sen} x} \cdot z^4 \cdot \left(-\frac{1}{\cancel{\operatorname{sen} x}}\right) dz =$$

$$= -\int z^2 \, dz + \int z^4 \, dz = -\frac{1}{3} z^3 + \frac{1}{5} z^5 + k =$$

$$= \boxed{-\frac{1}{3}\cos^3 x + \frac{1}{5}\cos^5 x + k}$$

NOTA: TUTTI GLI INTEGRALI DEL TIPO $\int \operatorname{sen}^m x \cdot \cos^n x \, dx$ CON m o n DISPARI SI RISOLVONO IN MODO ANALOGO