Integración por cambio de variable.

$$\int (x+7)^{10}\,dx = \left\{\begin{array}{l} t = x+7 \\ \dfrac{dt}{dx} = 1 \quad \rightarrow \quad dt = dx \end{array}\right\} = \int t^{10}\,dt = \frac{t^{11}}{11} + C = \frac{(x+7)^{11}}{11} + C$$

$$\int (3x+6)^5 dx = \frac{1}{3}\int 3\,(3x+6)^5 dx = \frac{1}{3}\,\frac{(3x+6)^6}{6} + C$$

$$\int (3x+6)^5 dx = \left\{\begin{array}{l} t = 3x+6 \\ \dfrac{dt}{dx} = 3 \quad \rightarrow \quad dt = 3dx \rightarrow dx = \dfrac{dt}{3} \end{array}\right\} = \int t^5 \frac{dt}{3} = \frac{1}{3}\,\frac{t^6}{6} + C =$$

$$= \frac{1}{18}(3x+6)^6 + C$$

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$$a)\int \cos^5 x\,(-sen\ x)\,dx = \left\{\begin{array}{l} t = \cos x \\ dt = -senx\ dx \end{array}\right\} = \int t^5\ dt = \frac{t^6}{6} + C = \frac{(\cos x)^6}{6} + C = \frac{\cos^6 x}{6} + C$$

$$c)\int e^{\cos x}\ sen\ x\ dx = \left\{\begin{array}{l} t = \cos x \\ dt = -senx\ dx \rightarrow -dt = senx\ dx \end{array}\right\} = \int e^t\,(-dt) = \int -e^t\ dt = -e^t + C =$$

$$= -e^{\cos x} + C$$

$$e)\int 2x\ tg\ x^2\ dx = \left\{\begin{array}{l} t = x^2 \\ dt = 2xdx \end{array}\right\} = \int tg\ t\ dt = \int \frac{sen\ t}{\cos t}dt = -Ln\left|\cos t\right| + C = -Ln\left|\cos x^2\right| + C$$

$$f)\int \frac{3x^2}{1+x^6}dx = \int \frac{3x^2}{1+\left(x^3\right)^2}dx = \left\{\begin{array}{l} t = x^3 \\ dt = 3x^2dx \end{array}\right\} = \int \frac{dt}{1+t^2} = arctg\ t + C = arctg\ x^3 + C$$

$$i)\int \sqrt[3]{\left(x^4+5x\right)^2}\,\left(4x^3+5\right)dx = \left\{\begin{array}{l} t = x^4+5x \\ dt = \left(4x^3+5\right)dx \end{array}\right\} = \int \sqrt[3]{t^2}\ dt = \int t^{\frac{2}{3}}\ dt = \frac{t^{\frac{2}{3}+1}}{\frac{2}{3}+1} + C = \frac{t^{\frac{5}{3}}}{\frac{5}{3}} + C =$$

$$= \frac{3}{5}\sqrt[3]{t^5} + C = \frac{3}{5}\sqrt[3]{\left(x^4+5x\right)^5} + C$$

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