$\int 7x^4\,dx = 7\frac{x^5}{5} + C$

$\int \frac{1}{x^2}\,dx = \int x^{-2}\,dx = \frac{x^{-1}}{-1} + C = -\frac{1}{x} + C$

$\int \frac{x^4 - 5x^3 + 3x - 4}{x}\,dx = \int x^3 - 5x + 3 - \frac{4}{x}\,dx$

$\frac{x^4}{4} - 5\frac{x^2}{2} + 3x - 4\ln|x| + C$

$\int \frac{x^3}{2x}\,dx = \frac{1}{2}\int x^2\,dx = \frac{1}{2}\frac{x^3}{3} + C = \frac{x^3}{6} + C$

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$\int \sqrt{x}\,dx = \int x^{1/2}\,dx = \frac{x^{3/2}}{3/2} + C = \frac{2}{3}\sqrt{x^3} + C$

$\int \frac{7x^5 - 5x^2 + 3x - 4}{x^2}\,dx = \int 7x^2 - 5 + \frac{3}{x} - 4x^{-2}\,dx$

$\frac{7x^3}{3} - 5x + 3\ln|x| - 4\frac{x^{-1}}{-1} + C$

$\frac{7x^3}{3} - 5x + 3\ln|x| + \frac{4}{x} + C$

$\int \sqrt[3]{5x^2}\,dx$

$\rightarrow \sqrt[3]{5}\int x^{2/3}\,dx = \sqrt[3]{5}\frac{x^{5/3}}{5/3} + C = \frac{3}{5}\sqrt[3]{5x^5} + C$

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$\int \frac{\sqrt[3]{x} + \sqrt{5x^3}}{3x}\,dx = \frac{1}{3}\int x^{-2/3}\,dx + \frac{\sqrt{5}}{3}\int x^{1/2}\,dx$

$\frac{1}{3}\frac{x^{1/3}}{1/3} + \frac{\sqrt{5}}{3}\frac{x^{3/2}}{3/2} + C = \sqrt[3]{x} + \frac{2\sqrt{5x^3}}{9} + C$

$\int \frac{\sqrt{5x^3}}{\sqrt[3]{3x}}\,dx = \frac{\sqrt{5}}{\sqrt[3]{3}}\int x^{7/6}\,dx = \frac{\sqrt{5}}{\sqrt[3]{3}}\frac{x^{13/6}}{13/6} + C$

$\frac{3}{2} - \frac{1}{3} = \frac{7}{6}$

$\frac{6\sqrt{5}}{13\sqrt[3]{3}}\sqrt[6]{x^{13}} + C = \frac{6}{13}\sqrt[6]{\frac{5^3 \cdot x^{13}}{3^2}} + C$

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⑨ $g(x)$ primitiva de $f(x) = \operatorname{sen} x$

Pasa por el pto $(\pi, 0)$

$g(x) = \int f(x)\,dx = \int \operatorname{sen} x\,dx = -\cos x + C$

$g(\pi) = 0 \quad -\cos\pi + C = 0 \quad C = \cos\pi = -1$

$\boxed{g(x) = -\cos x - 1}$

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10) $f(x)=?$

$f(0)=1$

$f'(0)=2$

$f''(x)=3x$

$f \xrightarrow{D} f' \xrightarrow{D} f''$

$f \xleftarrow{\int} f' \xleftarrow{\int} f''$

! $f(x)=\int f'(x)dx$

$f'(x)=\int 3x\,dx=\frac{3x^2}{2}+C$

$f'(0)=2 \rightarrow \frac{3\cdot 0^2}{2}+C=2 \Rightarrow C=2$

$f'(x)=\frac{3x^2}{2}+2$

$f(x)=\int f'(x)dx=\int \frac{3x^2}{2}+2\,dx=$

$\frac{x^3}{2}+2x+C$

$f(0)=1 \quad 0+0+C=1 \Rightarrow C=1 \Rightarrow \boxed{f(x)=\frac{x^3}{2}+2x+1}$

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$\int x^2\,dx=\frac{x^3}{3}+C$

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

$\frac{1}{3}\cdot 3(x-1)^2\cdot 1$

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

$\frac{1}{3}\cdot 3(2x-1)^2\cdot 2$

FALLA

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

$\frac{1}{n+1}\cdot f'(x)f(x)$

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

$\int f'(x)\frac{1}{2\sqrt{f(x)}}\,dx=\sqrt{f(x)}+C$

$\int f'(x)\frac{1}{\sqrt[n]{f(x)^{n-1}}}\,dx=\sqrt[n]{f(x)}+C$

$\int f'(x)\,a^{f(x)}\,dx=\frac{a^{f(x)}}{\ln a}+C$

$\int f'(x)\,e^{f(x)}\,dx=e^{f(x)}+C$

$\int \frac{f'(x)}{f(x)}dx=\ln|f(x)|+C$

$\int f'(x)\operatorname{sen} f(x)\,dx=-\cos f(x)+C$

$\int f'(x)\cos f(x)\,dx=\operatorname{sen} f(x)+C$

$\int f'(x)\left(1+\operatorname{tg}^2 f(x)\right)dx=\int f'(x)\frac{1}{\cos^2 f(x)}dx$

$\operatorname{tg} f(x)+C$

$\int \frac{f'(x)}{\sqrt{1-f(x)^2}}dx=\operatorname{arc\,sen} f(x)+C$

$\int \frac{f'(x)}{1+f(x)^2}dx=\operatorname{arctg} f(x)+C$

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

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

$\frac{1}{6}\cdot 3(2x+1)^2\cdot 2$

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

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

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

$\int (4x^5+4x^2+1)\,dx=4\frac{x^5}{5}+4\frac{x^3}{3}+x+C$

$\int (2x^2+1)^{10}\,dx$: NO ME LA VAN A PEDIR

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$\int e^{2x+1}\,dx = \frac{1}{2}\int 2\,e^{2x+1}\,dx = \frac{1}{2}e^{2x+1}+C$

$\int f'(x)\,e^{f(x)}\,dx = e^{f(x)}+C$

$\frac{1}{3}\int 3\cdot 2x\,\operatorname{sen}(3x^2+4)\,dx = \frac{1}{3}\cdot(-\cos(3x^2+4))+C$

$\int f'(x)\operatorname{sen} f(x)\,dx = -\cos f(x)+C$

$\frac{-\cos(3x^2+1)}{3}+C$

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