BIOMATEMATICA

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Integrales.

k) $\int 7x^3\sqrt{x}\,dx = x^3\sqrt{x} : x^{\frac{7}{2}} = 7\cdot\frac{2}{9}x^{\frac{1}{2}} : \frac{14}{9}x^{\frac{9}{2}} = \frac{14}{9}x^{\frac{7}{2}} =$
$= \frac{14}{9}x^{\frac{9}{2}} + C$

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

m) $\int 3u^5 - 2u\,du = 3u^5\,du - \int 3u^3\,du = \int 3u^3\,du = u^6 - \int 2u^3\,dy = \frac{u^4}{2}$
$= \frac{4^6}{2} - \frac{4^4}{2} + C$

n) $\int y^3(2y^2 - y)\,dy = \frac{2y^6}{3} - \frac{y^5}{5} + C$

o) $\int x^4(5 - x^2)\,dx = 5x^4 - x^6 \cdot \int 5x^4\,dx = x^5 \int x^6\,dx = \frac{x^7}{7} =$
$= x^5 - \frac{x^7}{7} + C$

p) $\int (3 - 2t + t^2)\,dt = 3t - t^2 + \frac{t^3}{3} + C$

q) $\int \sqrt{x}\,(x+1)\,dx = \frac{1}{2}\,14x\sqrt{x(x+1)} + 2\sqrt{x(x+1)} - 2x\,|1+2\sqrt{x(x+1)}| + C$

Rumate.

R) $\int (8x^4 + 4x^3 - 6x^2 - 8)\,dx$

$= \int 8^4\,dx + \int 4x^3 - 6^2\,dx - \int 8\,dx$

$\int 8x^4\,dx = \frac{8x^5}{5}$ $\int 4x^3\,dx = x^4$ $\int 6x^2\,dx = 2x^3$ $\int 8\,dx = 2x$

$= \frac{8x^5}{5} + x^4 - 2x^3 - 2x + C.$

S) $\int (2 + 3x^2 - 8x^3)\,dx$

$= \int 2\,dx + \int 3x^2\,dx - \int 8x^3\,dx$

$\int 2\,dx = 2x$ $\int 3x^2\,dx = x^3$ $\int 2x + x^3 - 2x^4$

$= 2x + 3x^3 - 2x^4 + C.$

T) $\int \sqrt[3]{x}\,(x+1)\,dx = x^{1/3}(x+1) = x^{4/3} + x^{4/3} - 3x^{4/3}$

$\frac{x^{4/3+3/5}}{\frac{4}{3}+\frac{3}{5}} = \frac{x^{\frac{7}{3}}}{\frac{7}{3}} = \frac{3x^{7/3}}{7} = x^{\frac{1}{3}+\frac{4}{3}+\frac{1}{3}+\frac{3}{3}}$ $\frac{4/3}{4}$

$= \frac{3x^{7/3}}{7} + \frac{3x^{4/3}}{4} + C.$

U) $\int (ax^2 + bx + c)\,dx$

$= \frac{ax^3}{3} + \frac{bx^2}{2} + cx + c.$

V) $\int \left(\sqrt{x} - \frac{1}{\sqrt{x}}\right) dx$

$= 2/3x^{3/2} - 2x^{1/2} + C.$