15) $\int (3u^5 - 2u^3)\,du$

$\int 3u^5\,du - \int 2u^3\,du$

$3\int u^5\,du - 2\int u^3\,du$

$3 \cdot \frac{u^6}{6_2} - 2 \cdot \frac{u^4}{4_2} + C$

$\frac{u^6}{2} - \frac{u^4}{2} + C$ //

• $f(x) = \frac{u^6}{2} - \frac{u^4}{2} + C$

$= \frac{6u^5}{2_1} - \frac{4u^3}{2_1} + 0$

$= 3u^5 - 2u^3$ //

16) $\int y^3(6y^2 - 3)\,dy$

$\int (2y^5 - 3y^3)\,dy$

$\int 2y^5\,dy - \int 3y^3\,dy$

$2\int y^5\,dy - 3\int y^3\,dy$

$2 \cdot \frac{y^6}{6_3} - 3 \cdot \frac{y^4}{4} + C$

$\frac{y^6}{3} - \frac{3y^4}{4} + C$

• $f(x) = \frac{y^6}{3} - \frac{3y^4}{4} + C$

$= \frac{d}{dx}\frac{y^6}{3} - \frac{d}{dx}\frac{3y^4}{4} + C$

$= \frac{6y^5}{3_1} - \frac{12y^3}{4_1} + 0$

$= 2y^5 - 3y^3$

$= y^3(2y^2 - 3)$ //

17) $\int x^4(5 - x^2)\,dx$

$\int (5x^4 - x^6)\,dx$

$\int 5x^4\,dx - \int x^6\,dx$

$5\int x^4\,dx - \int x^6\,dx$

$5 \cdot \frac{x^5}{5} - \frac{x^7}{7} + C$

$x^5 - \frac{x^7}{7} + C$

• $f(x) = x^5 - \frac{x^7}{7} + C$

$= \frac{d}{dx}x^5 - \frac{d}{dx}\frac{x^7}{7} + \frac{d}{dx}C$

$= 5x^4 - 7\frac{x^6}{7} + 0$

$= 5x^4 - x^6$

$= x^4(5 - x^2)$ //

18) $\int (x^2 + x)\,dx$

$\int x^2\,dx + \int x\,dx$

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

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

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

$= \frac{3x^2}{3} + \frac{2x}{2} + 0$

$= x^2 + x$ //