

1. p38e01 - Calcula las siguientes integrales inmediatas:

(a) $\int 4x^6 \cdot dx$

Sol: $\frac{4x^7}{7} + K$

Sol: $\frac{\operatorname{atan}\left(\frac{x}{2}\right)}{2} + K$

(b) $\int 6x^3 + 8x^2 + 3 \cdot dx$

Sol: $\frac{3x^4}{2} + \frac{8x^3}{3} + 3x + K$

(k) $\int \frac{2x-3}{x^2-3x+9} \cdot dx$

Sol: $\log(x^2 - 3x + 9) + K$

(c) $\int \sqrt{2}\sqrt{x} \cdot dx$

Sol: $\frac{2\sqrt{2}x^{\frac{3}{2}}}{3} + K$

(l) $\int 2e^{x^2}x \cdot dx$

Sol: $e^{x^2} + K$

(d) $\int \frac{1}{\sqrt[5]{x}} \cdot dx$

Sol: $\frac{5x^{\frac{4}{5}}}{4} + K$

(m) $\int \frac{1}{x-4} \cdot dx$

Sol: $\log(x - 4) + K$

(e) $\int \frac{\sqrt[3]{5}\sqrt[3]{x^2} + \sqrt{3}\sqrt{x^3}}{\sqrt{2}\sqrt{x}} \cdot dx$

Sol: $\frac{\sqrt{2}\left(6\frac{\sqrt[3]{5}\sqrt{x}\sqrt[3]{x^2}}{7} + \frac{\sqrt{3}\sqrt{x}\sqrt{x^3}}{2}\right)}{2} + K$

(n) $\int \frac{1}{(x-4)^3} \cdot dx$

Sol: $-\frac{1}{2x^2-16x+32} + K$

(f) $\int \frac{1}{x-1} \cdot dx$

Sol: $\log(x - 1) + K$

(ñ) $\int e^{5x} \cdot dx$

Sol: $\frac{e^{5x}}{5} + K$

(g) $\int \frac{5}{4x^2+1} \cdot dx$

Sol: $\frac{5\operatorname{atan}(2x)}{2} + K$

(o) $\int \frac{\sqrt{x}+x}{x^2} \cdot dx$

Sol: $\log(x) - \frac{2}{\sqrt{x}} + K$

(h) $\int \frac{2}{9x^2+1} \cdot dx$

Sol: $\frac{2\operatorname{atan}(3x)}{3} + K$

(p) $\int \frac{\log(x)^3}{x} \cdot dx$

Sol: $\frac{\log(x)^4}{4} + K$

(i) $\int \frac{1}{1-4x^2} \cdot dx$

Sol: $-\frac{\log\left(x-\frac{1}{2}\right)}{4} + \frac{\log\left(x+\frac{1}{2}\right)}{4} + K$

(q) $\int \frac{\sin(\sqrt{x})}{\sqrt{x}} \cdot dx$

Sol: $-2\cos(\sqrt{x}) + K$

(j) $\int \frac{1}{x^2+4} \cdot dx$

(r) $\int e^{9+(-2)x} \cdot dx$

Sol: $-\frac{e^{9-2x}}{2} + K$

2. p38e01cont - Calcula las siguientes integrales inmediatas:

(a) $\int 3^x - x^3 \cdot dx$

Sol: $x(3^x - x^3) + K$

Sol: $x \sin(x) \cos(x) + K$

(b) $\int \frac{3x^2 + 2e^{2x} + \cos(x)}{x^3 + e^{2x} + \sin(x)} \cdot dx$

Sol: $\frac{x(3x^2 + 2e^{2x} + \cos(x))}{x^3 + e^{2x} + \sin(x)} + K$

(f) $\int e^{4x-3} \cdot dx$

Sol: $xe^{4x-3} + K$

(c) $\int 6 \cos(2x - 1) \cdot dx$

Sol: $6x \cos(2x - 1) + K$

(g) $\int \frac{4}{x^2+3} \cdot dx$

Sol: $\frac{4x}{x^2+3} + K$

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

Sol: $\frac{x(x+1)}{x^2+2x+3} + K$

(h) $\int \sqrt{(x+3)^3} \cdot dx$

Sol: $x\sqrt{(x+3)^3} + K$

(e) $\int \sin(x) \cos(x) \cdot dx$

(i) $\int \frac{\sin(x)}{\cos(x)} \cdot dx$

Sol: $\frac{x \sin(x)}{\cos(x)} + K$

3. p38e02 - Calcula las siguientes integrales, por cambio de variable:

(a) $\int x \sin(x^2) \cdot dx$

Sol: $xx \sin(x^2) + K$

Sol: $\frac{x(\tan^2(x)+1)}{\sqrt{\tan(x)}} + K$

(b) $\int \frac{x}{\sqrt{x^2+5}} \cdot dx$

Sol: $\frac{xx}{\sqrt{x^2+5}} + K$

(f) $\int (x-1)\sqrt{x^2-2x} \cdot dx$

Sol: $x(x-1)\sqrt{x^2-2x} + K$

(c) $\int \frac{\sin(x)}{\cos^5(x)} \cdot dx$

Sol: $\frac{x \sin(x)}{\cos^5(x)} + K$

(g) $\int \sin(x) \sin(\cos(x)) \cdot dx$

Sol: $x \sin(x) \sin(\cos(x)) + K$

(d) $\int \frac{x}{(x^2+3)^5} \cdot dx$

Sol: $\frac{xx}{(x^2+3)^5} + K$

(h) $\int \frac{\log(x)^2+1}{x} \cdot dx$

Sol: $\frac{x(\log(x)^2+1)}{x} + K$

(e) $\int \frac{\tan^2(x)+1}{\sqrt{\tan(x)}} \cdot dx$

(i) $\int \sqrt{(\cos(x)+1)^3} \sin(x) \cdot dx$

Sol: $x\sqrt{(\cos(x)+1)^3} \sin(x) + K$

4. p38e03 - Calcula las siguientes integrales, por partes:

(a) $\int e^x x \cdot dx$

Sol: $(x - 1) e^x + K$

(f) $\int \operatorname{asin}(x) \cdot dx$

Sol: $x \operatorname{asin}(x) + \sqrt{1 - x^2} + K$

(b) $\int \log(x) \cdot dx$

Sol: $x \log(x) - x + K$

(g) $\int x \cos(3x) \cdot dx$

Sol: $\frac{x \sin(3x)}{3} + \frac{\cos(3x)}{9} + K$

(c) $\int x^3 \log(x) \cdot dx$

Sol: $\frac{x^4 \log(x)}{4} - \frac{x^4}{16} + K$

(h) $\int e^{2x} x^2 \cdot dx$

Sol: $\frac{(2x^2 - 2x + 1)e^{2x}}{4} + K$

(d) $\int x \sin(x) \cdot dx$

Sol: $-x \cos(x) + \sin(x) + K$

(i) $\int \frac{x}{e^x} \cdot dx$

Sol: $(-x - 1) e^{-x} + K$

(e) $\int \operatorname{atan}(x) \cdot dx$

Sol: $x \operatorname{atan}(x) - \frac{\log(x^2 + 1)}{2} + K$

(j) $\int \frac{\log(x)}{x^2} \cdot dx$

Sol: $-\frac{\log(x)}{x} - \frac{1}{x} + K$

5. p38e04 - Resuelve las siguientes integrales, que luego aparecerán al integrar funciones racionales:

(a) $\int \frac{3}{2x-1} \cdot dx$

Sol: $\frac{3 \log(2x-1)}{2} + K$

Sol: $-\frac{1}{x^2+4x+4} + K$

(b) $\int \frac{2}{(x+2)^3} \cdot dx$

(c) $\int \frac{7x-5}{x^2+4} \cdot dx$

Sol: $\frac{7 \log(x^2+4)}{2} - \frac{5 \operatorname{atan}(\frac{x}{2})}{2} + K$