

1. p38e01 - Calcula los siguientes límites:

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

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

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

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

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

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

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

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

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

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

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

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

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

Sol: $\frac{5 \operatorname{atan}\left(\frac{2x}{1}\right)}{2} + K$

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

Sol: $\frac{2 \operatorname{atan}\left(\frac{3x}{1}\right)}{3} + K$

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

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

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

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

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

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

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

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

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

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

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

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

(ñ) $\int e^{5x} \cdot dx$

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

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

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

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

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

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

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

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

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

2. p38e01cont - Calcula los siguientes límites:

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

Sol: $\frac{3^x}{\log(3)} - \frac{x^4}{4} + K$

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

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

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

Sol: $3 \sin(2x - 1) + K$

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

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

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

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

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

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

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

Sol: $\frac{4\sqrt{3} \operatorname{atan}\left(\frac{\sqrt{3}x}{3}\right)}{3} + K$

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

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

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

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

3. p38e02 - Calcula los siguientes límites, por cambio de variable:

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

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

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

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

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

Sol: $\frac{1}{4 \cos^4(x)} + K$

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

Sol: $-\frac{1}{8x^8+96x^6+432x^4+864x^2+648} + K$

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

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

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

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

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

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

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

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

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

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