1. p38e01 - Calcula las siguientes integrales inmediatas:

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

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

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

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

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

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

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

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

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

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

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

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

(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: $x\left(3^x - x^3\right) + K$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(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) $\int x\sin\left(x^2\right) \cdot dx$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(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: $(x-1)\,e^x + K$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

   (f) $\int \frac{7}{(2x-3)^2} \cdot dx$

   Sol: $-\frac{7}{4x-6} + K$

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

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

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

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

6. p38e05 - Calcula las siguientes integrales racionales:

(a) $\int \frac{x-2}{x^2+x} \cdot dx$

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

(b) $\int \frac{x^3+4x^2-10x+7}{x^3-7x-6} \cdot dx$

Sol: $x + 2\log(x-3) - 5\log(x+1) + 7\log(x+2) + K$

(c) $\int \frac{2x^2+5x-1}{x^3+x^2-2x} \cdot dx$

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

(d) $\int \frac{2x+3}{x^2+3x-10} \cdot dx$

Sol: $\log\left(x^2+3x-10\right) + K$

(e) $\int \frac{1}{x^3+x^2-6x} \cdot dx$

Sol: $-\frac{\log(x)}{6} + \frac{\log(x-2)}{10} + \frac{\log(x+3)}{15} + K$

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

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

(g) $\int \frac{2x^2+7x-1}{x^3+x^2-x-1} \cdot dx$

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

(h) $\int \frac{2x-4}{(x-1)^2(x+3)} \cdot dx$

Sol: $\frac{5(x-1)(\log(x-1)-\log(x+3))+4}{8(x-1)} + K$

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

Sol: $\frac{-12x+5(\log(x-1)-\log(x+2))\left(x^2+x-2\right)-6}{27(x^2+x-2)} + K$

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

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

(k) $\int \frac{8x^2-2x-1}{x^3-x^2+4x-4} \cdot dx$

Sol: $\log(x-1) + \frac{7\log\left(x^2+4\right)}{2} + \frac{5\operatorname{atan}\left(\frac{x}{2}\right)}{2} + K$

(l) $\int \frac{6x+8}{x^2+2x+5} \cdot dx$

Sol: $3\log\left(x^2+2x+5\right) + \operatorname{atan}\left(\frac{x}{2}+\frac{1}{2}\right) + K$

(m) $\int \frac{3x-2}{x^3-3x^2+12x-10} \cdot dx$

Sol: $\frac{\log(x-1)}{9} - \frac{\log\left(x^2-2x+10\right)}{18} + \operatorname{atan}\left(\frac{x}{3}-\frac{1}{3}\right) + K$