a) $f(x) = 8x^3 - 6x^2 + 1$; $I = \mathbb{R}$.

b) $f(x) = 9x^2 - 4x + 5$; $I = \mathbb{R}$.

c) $f(x) = \frac{1}{2}x^4 - \frac{3}{5}x^2 + \frac{1}{10}$; $I = \mathbb{R}$.

d) $f(x) = \frac{10x^4 - 8x^3 + 3x^2}{12}$; $I = \mathbb{R}$.

a) $f(x) = (2x+1)^{2012}$; **b)** $f(x) = x(1-x^2)^5$.

c) $f(x) = \cos(x)\sin(x)$; **d)** $f(x) = e^x(1-e^x)^2$.

a) $f(x) = \frac{1}{\sqrt{x-1}}$; $I =]1; +\infty[$.

b) $f(x) = \frac{x}{\sqrt{x^2-1}}$; $I =]1; +\infty[$.

c) $f(x) = \frac{e^x}{2\sqrt{e^x+1}}$; $I = \mathbb{R}$.

a) $f(x) = e^{-2x+1}$. **b)** $f(x) = xe^{-x^2+1}$.

c) $f(x) = (x+1)e^{x^2+2x-3}$. **d)** $f(x) = e^{\sin(x)}\cos(x)$.

a) $f(x) = \frac{2}{x-1}$; $I =]1; +\infty[$.

b) $f(x) = \frac{x-2}{-x^2+4x-3}$; $I =]1; 3[$.

c) $f(x) = \frac{e^x}{1+e^x}$; $I = \mathbb{R}$.

Pour les exercices 79 à 84

Calculez la valeur exacte de chaque intégrale à l'aide d'une primitive.

79 **a)** $I = \int_{-1}^{4} (2x-3)^2 dx$; **b)** $J = \int_{-2}^{1} (x-4)^3 dx$.

c) $K = \int_{0}^{1} (2x+1)(x^2+x) dx$; **d)** $L = \int_{1}^{2} 2x(x^2+1)^3 dx$.

80 **a)** $I = \int_{0}^{2} \frac{3t}{(t^2+1)^2} dt$; **b)** $J = \int_{1}^{2} \frac{t^3}{t^4+1} dt$.

c) $K = \int_{0}^{3} \frac{1}{(2t+1)^2} dt$; **d)** $L = \int_{1}^{2} \frac{1}{3t+2} dt$.

81 **a)** $I = \int_{0}^{3} \frac{1}{\sqrt{1+x}} dx$; **b)** $J = \int_{0}^{-1} \frac{2}{\sqrt{1-3x}} dx$.

c) $K = \int_{-1}^{\sqrt{3}} \frac{3x}{\sqrt{x^2+1}} dx$; **d)** $L = \int_{\sqrt{2}}^{\sqrt{3}} \frac{x}{\sqrt{x^2-1}} dx$.

82 **a)** $I = \int_{\ln(2)}^{\ln(3)} 4e^t dt$; **b)** $J = \int_{0}^{1} te^{t^2-1} dt$.

c) $K = \int_{\frac{1}{3}}^{1} e^{1-2t} dt$; **d)** $L = \int_{-\frac{\pi}{3}}^{0} e^{\cos(t)}\sin(t) dt$.

83 **a)** $I = \int_{2}^{1} \frac{x-3}{x} dx$; **b)** $J = \int_{-1}^{1} \frac{x}{4-x^2} dx$.

c) $K = \int_{1}^{2} \frac{x+1}{(x^2+2x)^2} dx$; **d)** $L = \int_{2}^{1} \frac{x+1}{x^2+2x} dx$.

84 **a)** $I = \int_{\frac{\pi}{6}}^{\pi} \frac{\sin(t) - t\cos(t)}{t^2} dt$.

b) $J = \int_{0}^{\frac{\pi}{2}} \cos\left(2t - \frac{\pi}{3}\right) dt$.

c) $K = \int_{0}^{\frac{\pi}{3}} (\cos(t) - t\sin(t)) dt$.

d) $L = \int_{1}^{2} \sin\left(\pi t + \frac{\pi}{4}\right) dt$.