Calculs de primitives

1) $f(x) = \frac{x^2}{5}$ $\quad D_f = \mathbb{R}$ $\quad \int x^n\,dx = \frac{x^{n+1}}{n+1}$

$F(x) = \frac{1}{5}\cdot\frac{x^3}{3} + k$

$F(x) = \frac{x^3}{15} + k$

2) $g(t) = -2\sin t$ $\quad D_g = \mathbb{R}$ $\quad \int \sin t\,dt = -\cos t$

$G(t) = 2\cos t + k$

3) $h(x) = \frac{1}{3x^5} = \frac{1}{3} \times x^{-5}$ $\quad D_h = \mathbb{R}^*$

$H(x) = \frac{1}{3} \times \frac{x^{-4}}{-4} + k$

$H(x) = \frac{1}{-12} x^{-4} + k$

$H(x) = \frac{-1}{12x^4} + k$

4) $k(t) = -\frac{2}{t^2} = -2 \times t^{-2}$ $\quad D_k = \mathbb{R}^*$

$K(t) = -2 \times \frac{t^{-1}}{-1} + k$

$K(t) = 2t^{-1} + k$

$K(t) = \frac{2}{t} + k$

5) $g(x) = x^2 + x + 3$ $\quad D_g = \mathbb{R}$

$G(x) = \frac{x^3}{3} + \frac{x^2}{2} + 3x + k$

6) $f(x) = 4x^3 - 2x + 1$ $\quad D_f = \mathbb{R}$

$F(x) = 4\frac{x^4}{4} - 2\frac{x^2}{2} + x + k$

$F(x) = x^4 - x^2 + x + k$

7) $h(t) = \frac{3}{t^2} - \frac{5}{2t^4}$ $\quad D_h = \mathbb{R}^*$

$h(t) = 3t^{-2} - \frac{5}{2}t^{-4}$

$H(t) = 3\frac{t^{-1}}{-1} - \frac{5}{2}\frac{t^{-3}}{-3} + k$

$H(t) = -\frac{3}{t} + \frac{5}{6t^3} + k$

8) $k(t) = \frac{t^3 + 4t^2 - 2}{t^2}$ $\quad D_k = \mathbb{R}^*$

$k(t) = t + 4 - \frac{2}{t^2}$

$k(t) = t + 4 - 2t^{-2}$

$K(t) = \frac{t^2}{2} + 4t - \frac{2t^{-1}}{-1} + k$

$K(t) = \frac{t^2}{2} + 4t + \frac{2}{t} + k$

9) $f(x) = 2x^3 - 5x + 3$ $\quad D_f = \mathbb{R}$

$F(x) = 2\frac{x^4}{4} - 5\frac{x^2}{2} + 3x + k$

$F(x) = \frac{1}{2}x^4 - \frac{5}{2}x^2 + 3x + k$

10) $g(x) = x^2 - \frac{3}{x^2}$ $\quad D_g = \mathbb{R}^*$

$g(x) = x^2 - 3x^{-2}$

$G(x) = \frac{x^3}{3} - \frac{3x^{-1}}{-1} + k$

$G(x) = \frac{x^3}{3} + \frac{3}{x} + k$

11) $k(x) = \frac{2}{\sqrt{x}} + \frac{1}{5x^3}$ $\quad D_k = \mathbb{R}^{+*}$

$k(x) = \frac{2}{x^{1/2}} + \frac{1}{5}x^{-3}$

$k(x) = 2x^{-1/2} + \frac{1}{5}x^{-3}$

$K(x) = 2\frac{x^{1/2}}{1/2} + \frac{1}{5}\frac{x^{-2}}{-2} + k$

$K(x) = 2 \times 2\, x^{1/2} - \frac{1}{10}x^{-2} + k$

$K(x) = 4\sqrt{x} - \frac{1}{10x^2} + k$

12) $h(x) = \frac{x^3 - 3x + 1}{2x^3}$ $\quad D_h = \mathbb{R}^*$

$h(x) = \frac{x^3}{2x^3} - \frac{3x}{2x^3} + \frac{1}{2x^3}$

$h(x) = \frac{1}{2} - \frac{3}{2x^2} + \frac{1}{2}x^{-3}$

$h(x) = \frac{1}{2} - \frac{3}{2}x^{-2} + \frac{1}{2}x^{-3}$

$H(x) = \frac{1}{2}x - \frac{3}{2}\frac{x^{-1}}{-1} + \frac{1}{2}\frac{x^{-2}}{-2} + k$

$H(x) = \frac{1}{2}x + \frac{3}{2x} + \frac{1}{4x^2} + k$

Calculs de primitives

1) $f(x) = \dfrac{6x+3}{(x^2+x+3)^3}$

$f(x) = (6x+3)\,(x^2+x+3)^{-3}$

$F(x) = 3\,\dfrac{(x^2+x+3)^{-2}}{-2} + k$

$F(x) = \dfrac{-3}{2(x^2+x+3)^2} + k$

3) $f(x) = x(3x^2+1)^4$

$F(x) = \dfrac{1}{6}\,\dfrac{(3x^2+1)^5}{5} + k$

$F(x) = \dfrac{(3x^2+1)^5}{30} + k$

5) $f(t) = \dfrac{t^2}{(t^3-1)^2}$

$f(t) = t^2\,(t^3-1)^{-2}$

$F(t) = \dfrac{1}{3}\,\dfrac{(t^3-1)^{-1}}{-1} + k$

$F(t) = -\dfrac{1}{3}\,(t^3-1)^{-1} + k$

$F(t) = \dfrac{-1}{3(t^3-1)} + k$

7) $g(x) = (x-1)\,(3x^2-6x+4)$

$G(x) = \dfrac{1}{6}\,\dfrac{(3x^2-6x+4)^2}{2} + k$

$G(x) = \dfrac{1}{12}\,(3x^2-6x+4)^2 + k$

9) $f(t) = \cos t \sin^2 t$

$F(t) = \dfrac{\sin^3 t}{3} + k$

10) $h(x) = (1+\tan^2 x)\tan^3 x$

$H(x) = \dfrac{\tan^4 x}{4} + k$

12) $h(x) = 5x^4 - \dfrac{x^3}{2} + \dfrac{1}{3}x + 1$

$H(x) = x^5 - \dfrac{1}{2}\dfrac{x^4}{4} + \dfrac{1}{3}\dfrac{x^2}{2} + x + k$

$H(x) = x^5 - \dfrac{x^4}{8} + \dfrac{x^2}{6} + x + k$

2) $g(x) = 4x\,(x^2-1)^3$

$G(x) = 2\,\dfrac{(x^2-1)^4}{4} + k$

$G(x) = \dfrac{(x^2-1)^4}{2} + k$

4) $h(x) = \dfrac{3x^2+x}{(2x^3+x^2-4)^3}$

$h(x) = (3x^2+x)(2x^3+x^2-4)^{-3}$

$H(x) = \dfrac{1}{2}\,\dfrac{(2x^3+x^2-4)^{-2}}{-2} + k$

$H(x) = -\dfrac{1}{4}\,(2x^3+x^2-4)^{-2} + k$

$H(x) = \dfrac{-1}{4(2x^3+x^2-4)^2} + k$

6) $g(x) = x(x^2+3)^3$

$G(x) = \dfrac{1}{2}\,\dfrac{(x^2+3)^4}{4} + k$

$G(x) = \dfrac{1}{8}\,(x^2+3)^4 + k$

8) $f(x) = \dfrac{x+1}{(x^2+2x+1)^4}$

$f(x) = (x+1)(x^2+2x+1)^{-4}$

$F(x) = \dfrac{1}{2}\,\dfrac{(x^2+2x+1)^{-3}}{-3} + k$

$F(x) = -\dfrac{1}{6}\,(x^2+2x+1)^{-3} + k$

$F(x) = \dfrac{-1}{6(x^2+2x+1)^3} + k$

11) $f(t) = \cos(3t)$

$F(t) = \dfrac{\sin(3t)}{3} + k$

13) $f(x) = \dfrac{2x^3+x}{(x^4+x^2+4)^2}$

$f(x) = (2x^3+x)\,(x^4+x^2+4)^{-2}$

$F(x) = \dfrac{1}{2} \times \dfrac{(x^4+x^2+4)^{-1}}{-1} + k$

$F(x) = \dfrac{-1}{2(x^4+x^2+4)} + k$

Calculs de primitives

1) $f(x) = \cos 2x$

$F(x) = \dfrac{\sin 2x}{2} + k$

3) $f(x) = \dfrac{1}{2\sqrt{3-x}}$

$f(x) = \dfrac{1}{2\,(3-x)^{1/2}}$

$f(x) = \dfrac{1}{2}\,(3-x)^{-1/2}$

$F(x) = -\dfrac{1}{2}\,\dfrac{(3-x)^{1/2}}{1/2} + k$

$F(x) = -\dfrac{1}{2} \times \dfrac{2}{1}\,(3-x)^{1/2} + k$

$F(x) = -\sqrt{3-x} + k$

6) $g(x) = \dfrac{3}{\sqrt{3x+1}}$

$g(x) = \dfrac{3}{(3x+1)^{1/2}}$

$g(x) = 3 \times (3x+1)^{-1/2}$

$G(x) = 3 \times \dfrac{1}{3} \times \dfrac{(3x+1)^{1/2}}{1/2} + k$

$G(x) = 2\,(3x+1)^{1/2} + k$

$G(x) = 2\sqrt{3x+1} + k$

9) $h(x) = \dfrac{4}{(x+1)^3}$

$h(x) = 4\,(x+1)^{-3}$

$H(x) = 4\,\dfrac{(x-1)^{-2}}{-2} + k$

$H(x) = \dfrac{-2}{(x-1)^2} + k$

12) $h(x) = 3x^2(x^3+5)^4$

$H(x) = \dfrac{(x^3+5)^5}{5} + k$

13) $g(x) = \dfrac{2x}{(x^2+3)^2}$

$g(x) = 2x\,(x^2+3)^{-2}$

$G(x) = \dfrac{(x^2+3)^{-1}}{-1} + k = \dfrac{-1}{x^2+3} + k$

2) $h(x) = \dfrac{1}{\sqrt{5x-10}}$

$h(x) = \dfrac{1}{(5x-10)^{1/2}}$

$h(x) = (5x-10)^{-1/2}$

$H(x) = \dfrac{1}{5} \times \dfrac{(5x-10)^{1/2}}{1/2} + k$

$H(x) = \dfrac{2}{5}\sqrt{5x-10} + k$

4) $h(t) = \sin\left(3t + \pi/2\right)$

$H(t) = -\dfrac{1}{3}\cos\left(3t + \pi/2\right) + k$

5) $h(t) = 3(3t-1)^4$

$H(t) = 3 \times \dfrac{(3t-1)^5}{5} \times \dfrac{1}{3} + k$

$H(t) = \dfrac{(3t-1)^5}{5} + k$

7) $h(x) = 5(5x-2)^3$

$H(x) = 5\,\dfrac{(5x-2)^4}{4} \times \dfrac{1}{5} + k$

$H(x) = \dfrac{(5x-2)^4}{4} + k$

8) $f(x) = (x+1)^3$

$F(x) = \dfrac{(x+1)^4}{4} + k$

10) $f(x) = (2x-2)(x^2-2x-1)$

$F(x) = \dfrac{(x^2-2x-1)^2}{2} + k$

11) $f(x) = \dfrac{2x-1}{(x^2-x+1)^2}$

$f(x) = (2x-1)(x^2-x+1)^{-2}$

$F(x) = \dfrac{(x^2-x-1)^{-1}}{-1} + k$

$F(x) = \dfrac{-1}{x^2-x-1} + k$