jour	*mois*					
19	11	$f(x)=x^3-11x+12$ $f'(x)=3x^2-11$	$g(x)=\frac{1}{x}+19x^2+3$ $g'(x)=-\frac{1}{x^2}+38x$	$h(x)=(x^2+1)(11-2x)$ $h'(x)=-6x^2+22x-2$	$k(x)=\frac{2x-19}{4x^2+11}$ $k'(x)=\frac{-8x^2+152x+22}{(4x^2+11)^2}$	$l(x)=(-3x-19)^4$ $l'(x)=-12(-3x-19)^3$
14	8	$f(x)=x^3-8x+12$ $f'(x)=3x^2-8$	$g(x)=\frac{1}{x}+14x^2+3$ $g'(x)=-\frac{1}{x^2}+28x$	$h(x)=(x^2+1)(8-2x)$ $h'(x)=-6x^2+16x-2$	$k(x)=\frac{2x-14}{4x^2+8}$ $k'(x)=\frac{-8x^2+112x+16}{(4x^2+8)^2}$	$l(x)=(-3x-14)^4$ $l'(x)=-12(-3x-14)^3$
6	10	$f(x)=x^3-10x+12$ $f'(x)=3x^2-10$	$g(x)=\frac{1}{x}+6x^2+3$ $g'(x)=-\frac{1}{x^2}+12x$	$h(x)=(x^2+1)(10-2x)$ $h'(x)=-6x^2+20x-2$	$k(x)=\frac{2x-6}{4x^2+10}$ $k'(x)=\frac{-8x^2+48x+20}{(4x^2+10)^2}$	$l(x)=(-3x-6)^4$ $l'(x)=-12(-3x-6)^3$
16	6	$f(x)=x^3-6x+12$ $f'(x)=3x^2-6$	$g(x)=\frac{1}{x}+16x^2+3$ $g'(x)=-\frac{1}{x^2}+32x$	$h(x)=(x^2+1)(6-2x)$ $h'(x)=-6x^2+12x-2$	$k(x)=\frac{2x-16}{4x^2+6}$ $k'(x)=\frac{-8x^2+128x+12}{(4x^2+6)^2}$	$l(x)=(-3x-16)^4$ $l'(x)=-12(-3x-16)^3$
18	2	$f(x)=x^3-2x+12$ $f'(x)=3x^2-2$	$g(x)=\frac{1}{x}+18x^2+3$ $g'(x)=-\frac{1}{x^2}+36x$	$h(x)=(x^2+1)(2-2x)$ $h'(x)=-6x^2+4x-2$	$k(x)=\frac{2x-18}{4x^2+2}$ $k'(x)=\frac{-8x^2+144x+4}{(4x^2+2)^2}$	$l(x)=(-3x-18)^4$ $l'(x)=-12(-3x-18)^3$
31	10	$f(x)=x^3-10x+12$ $f'(x)=3x^2-10$	$g(x)=\frac{1}{x}+31x^2+3$ $g'(x)=-\frac{1}{x^2}+62x$	$h(x)=(x^2+1)(10-2x)$ $h'(x)=-6x^2+20x-2$	$k(x)=\frac{2x-31}{4x^2+10}$ $k'(x)=\frac{-8x^2+248x+20}{(4x^2+10)^2}$	$l(x)=(-3x-31)^4$ $l'(x)=-12(-3x-31)^3$
7	12	$f(x)=x^3-12x+12$ $f'(x)=3x^2-12$	$g(x)=\frac{1}{x}+7x^2+3$ $g'(x)=-\frac{1}{x^2}+14x$	$h(x)=(x^2+1)(12-2x)$ $h'(x)=-6x^2+24x-2$	$k(x)=\frac{2x-7}{4x^2+12}$ $k'(x)=\frac{-8x^2+56x+24}{(4x^2+12)^2}$	$l(x)=(-3x-7)^4$ $l'(x)=-12(-3x-7)^3$
30	11	$f(x)=x^3-11x+12$ $f'(x)=3x^2-11$	$g(x)=\frac{1}{x}+30x^2+3$ $g'(x)=-\frac{1}{x^2}+60x$	$h(x)=(x^2+1)(11-2x)$ $h'(x)=-6x^2+22x-2$	$k(x)=\frac{2x-30}{4x^2+11}$ $k'(x)=\frac{-8x^2+240x+22}{(4x^2+11)^2}$	$l(x)=(-3x-30)^4$ $l'(x)=-12(-3x-30)^3$
31	8	$f(x)=x^3-8x+12$ $f'(x)=3x^2-8$	$g(x)=\frac{1}{x}+31x^2+3$ $g'(x)=-\frac{1}{x^2}+62x$	$h(x)=(x^2+1)(8-2x)$ $h'(x)=-6x^2+16x-2$	$k(x)=\frac{2x-31}{4x^2+8}$ $k'(x)=\frac{-8x^2+248x+16}{(4x^2+8)^2}$	$l(x)=(-3x-31)^4$ $l'(x)=-12(-3x-31)^3$
9	2	$f(x)=x^3-2x+12$ $f'(x)=3x^2-2$	$g(x)=\frac{1}{x}+9x^2+3$ $g'(x)=-\frac{1}{x^2}+18x$	$h(x)=(x^2+1)(2-2x)$ $h'(x)=-6x^2+4x-2$	$k(x)=\frac{2x-9}{4x^2+2}$ $k'(x)=\frac{-8x^2+72x+4}{(4x^2+2)^2}$	$l(x)=(-3x-9)^4$ $l'(x)=-12(-3x-9)^3$
7	3	$f(x)=x^3-3x+12$ $f'(x)=3x^2-3$	$g(x)=\frac{1}{x}+7x^2+3$ $g'(x)=-\frac{1}{x^2}+14x$	$h(x)=(x^2+1)(3-2x)$ $h'(x)=-6x^2+6x-2$	$k(x)=\frac{2x-7}{4x^2+3}$ $k'(x)=\frac{-8x^2+56x+6}{(4x^2+3)^2}$	$l(x)=(-3x-7)^4$ $l'(x)=-12(-3x-7)^3$
10	12	$f(x)=x^3-12x+12$ $f'(x)=3x^2-12$	$g(x)=\frac{1}{x}+10x^2+3$ $g'(x)=-\frac{1}{x^2}+20x$	$h(x)=(x^2+1)(12-2x)$ $h'(x)=-6x^2+24x-2$	$k(x)=\frac{2x-10}{4x^2+12}$ $k'(x)=\frac{-8x^2+80x+24}{(4x^2+12)^2}$	$l(x)=(-3x-10)^4$ $l'(x)=-12(-3x-10)^3$
13	10	$f(x)=x^3-10x+12$ $f'(x)=3x^2-10$	$g(x)=\frac{1}{x}+13x^2+3$ $g'(x)=-\frac{1}{x^2}+26x$	$h(x)=(x^2+1)(10-2x)$ $h'(x)=-6x^2+20x-2$	$k(x)=\frac{2x-13}{4x^2+10}$ $k'(x)=\frac{-8x^2+104x+20}{(4x^2+10)^2}$	$l(x)=(-3x-13)^4$ $l'(x)=-12(-3x-13)^3$
22	4	$f(x)=x^3-4x+12$ $f'(x)=3x^2-4$	$g(x)=\frac{1}{x}+22x^2+3$ $g'(x)=-\frac{1}{x^2}+44x$	$h(x)=(x^2+1)(4-2x)$ $h'(x)=-6x^2+8x-2$	$k(x)=\frac{2x-22}{4x^2+4}$ $k'(x)=\frac{-8x^2+176x+8}{(4x^2+4)^2}$	$l(x)=(-3x-22)^4$ $l'(x)=-12(-3x-22)^3$
12	3	$f(x)=x^3-3x+12$ $f'(x)=3x^2-3$	$g(x)=\frac{1}{x}+12x^2+3$ $g'(x)=-\frac{1}{x^2}+24x$	$h(x)=(x^2+1)(3-2x)$ $h'(x)=-6x^2+6x-2$	$k(x)=\frac{2x-12}{4x^2+3}$ $k'(x)=\frac{-8x^2+96x+6}{(4x^2+3)^2}$	$l(x)=(-3x-12)^4$ $l'(x)=-12(-3x-12)^3$
20	7	$f(x)=x^3-7x+12$ $f'(x)=3x^2-7$	$g(x)=\frac{1}{x}+20x^2+3$ $g'(x)=-\frac{1}{x^2}+40x$	$h(x)=(x^2+1)(7-2x)$ $h'(x)=-6x^2+14x-2$	$k(x)=\frac{2x-20}{4x^2+7}$ $k'(x)=\frac{-8x^2+160x+14}{(4x^2+7)^2}$	$l(x)=(-3x-20)^4$ $l'(x)=-12(-3x-20)^3$
22	4	$f(x)=x^3-4x+12$ $f'(x)=3x^2-4$	$g(x)=\frac{1}{x}+22x^2+3$ $g'(x)=-\frac{1}{x^2}+44x$	$h(x)=(x^2+1)(4-2x)$ $h'(x)=-6x^2+8x-2$	$k(x)=\frac{2x-22}{4x^2+4}$ $k'(x)=\frac{-8x^2+176x+8}{(4x^2+4)^2}$	$l(x)=(-3x-22)^4$ $l'(x)=-12(-3x-22)^3$
11	9	$f(x)=x^3-9x+12$ $f'(x)=3x^2-9$	$g(x)=\frac{1}{x}+11x^2+3$ $g'(x)=-\frac{1}{x^2}+22x$	$h(x)=(x^2+1)(9-2x)$ $h'(x)=-6x^2+18x-2$	$k(x)=\frac{2x-11}{4x^2+9}$ $k'(x)=\frac{-8x^2+88x+18}{(4x^2+9)^2}$	$l(x)=(-3x-11)^4$ $l'(x)=-12(-3x-11)^3$
2	5	$f(x)=x^3-5x+12$ $f'(x)=3x^2-5$	$g(x)=\frac{1}{x}+2x^2+3$ $g'(x)=-\frac{1}{x^2}+4x$	$h(x)=(x^2+1)(5-2x)$ $h'(x)=-6x^2+10x-2$	$k(x)=\frac{2x-2}{4x^2+5}$ $k'(x)=\frac{-8x^2+16x+10}{(4x^2+5)^2}$	$l(x)=(-3x-2)^4$ $l'(x)=-12(-3x-2)^3$
19	3	$f(x)=x^3-3x+12$ $f'(x)=3x^2-3$	$g(x)=\frac{1}{x}+19x^2+3$ $g'(x)=-\frac{1}{x^2}+38x$	$h(x)=(x^2+1)(3-2x)$ $h'(x)=-6x^2+6x-2$	$k(x)=\frac{2x-19}{4x^2+3}$ $k'(x)=\frac{-8x^2+152x+6}{(4x^2+3)^2}$	$l(x)=(-3x-19)^4$ $l'(x)=-12(-3x-19)^3$