1

kill(x,y); depends(y,x); y : x + 1/x^2 - 1/(5*x^5); diff(y,x) ;

(% o11) $$done$$

(% o12) $$[y(x)]$$

(y) $$x + \frac{1}{x^2} - \frac{1}{5x^5}$$

(% o14) $$-\frac{2}{x^3} + \frac{1}{x^6} + 1$$

2

(% i18) kill(x,y); depends(y,x); y : 3*x - 6*sqrt(x); diff(y,x) ;

(% o15) $$done$$

(% o16) $$[y(x)]$$

(y) $$3x - 6\sqrt{x}$$

(% o18) $$3 - \frac{3}{\sqrt{x}}$$

3

(% i22)   kill(x,y); depends(y,x); y : x + sin(x); diff(y,x) ;

(% o19)   *done*

(% o20) $[\mathrm{y}(x)]$

(y) $\sin(x) + x$

(% o22) $\cos(x) + 1$

4

(% i26)   kill(x,y); depends(y,x); y : x - tan(x); diff(y,x) ;

(% o23)   *done*

(% o24) $[\mathrm{y}(x)]$

(y) $x - \tan(x)$

(% o26) $1 - \sec(x)^2$

5

(% i30) kill(x,y); depends(y,x); y : cos(x) / (x^2); diff(y,x) ;

(% o27) $$done$$

(% o28) $$[\mathrm{y}(x)]$$

(y) $$\frac{\cos{(x)}}{x^2}$$

(% o30) $$-\frac{\sin{(x)}}{x^2}-\frac{2\cos{(x)}}{x^3}$$

6

(% i34) kill(x,y); depends(y,x); y : x^2 / (x^2 + 1); diff(y,x) ;

(% o31) $$done$$

(% o32) $$[\mathrm{y}(x)]$$

(y) $$\frac{x^2}{x^2+1}$$

(% o34) $$\frac{2x}{x^2+1}-\frac{2x^3}{\left(x^2+1\right)^2}$$

7

kill(x,y); depends(y,x); y : x / (1-4*x); diff(y,x) ;

(% o35) $$done$$

(% o36) $$[\mathrm{y}(x)]$$

(y) $$\frac{x}{1-4x}$$

(% o38) $$\frac{4x}{(1-4x)^2} + \frac{1}{1-4x}$$

8

kill(x,y); depends(y,x); y : tan(x) / sqrt(x); diff(y,x) ;

(% o39) $$done$$

(% o40) $$[\mathrm{y}(x)]$$

(y) $$\frac{\tan{(x)}}{\sqrt{x}}$$

(% o42) $$\frac{\sec{(x)}^2}{\sqrt{x}} - \frac{\tan{(x)}}{2x^{\frac{3}{2}}}$$

9

kill(x,y); depends(y,x); f(x) := x^2 - 1/(2*x^2); diff(f(x),x) ;

(% o62) $$done$$

(% o63) $$[y(x)]$$

(% o64) $$f(x) := x^2 - \frac{1}{2x^2}$$

(% o65) $$2x + \frac{1}{x^3}$$

10

(% i69) kill(x,y,f); depends(f,x); f(x) := (1+ 1/x^(1/3))^3; diff(f(x),x) ;

(% o66) $$done$$

(% o67) $$[f(x)]$$

(% o68) $$f(x) := \left(1 + \frac{1}{x^{\frac{1}{3}}}\right)^3$$

(% o69) $$-\frac{\left(\frac{1}{x^{\frac{1}{3}}} + 1\right)^2}{x^{\frac{4}{3}}}$$

11

(% i73)   kill(x,f); depends(f,x); f(x) := cos(x) / (1+ 2* sin(x)); diff(f(x),x) ;

(% o70)   *done*

(% o71) $[\mathrm{f}(x)]$

$$(\% \ \mathrm{o}72) \qquad \mathrm{f}(x) := \frac{\cos(x)}{1 + 2\sin(x)}$$

$$(\% \ \mathrm{o}73) \qquad -\frac{\sin(x)}{2\sin(x) + 1} - \frac{2\cos(x)^2}{(2\sin(x) + 1)^2}$$

12

(% i77)   kill(x,f); depends(f,x); f(x) := sin(x/2) + cos(x/2); diff(f(x),x) ;

(% o74)   *done*

(% o75) $[\mathrm{f}(x)]$

$$(\% \ \mathrm{o}76) \qquad \mathrm{f}(x) := \sin\left(\frac{x}{2}\right) + \cos\left(\frac{x}{2}\right)$$

$$(\% \ \mathrm{o}77) \qquad \frac{\cos\left(\frac{x}{2}\right)}{2} - \frac{\sin\left(\frac{x}{2}\right)}{2}$$

13

kill(x,f); depends(f,x); f(x) := 6* cos(x/3); diff(f(x),x) ;

(% o78) $$done$$

(% o79) $$[\mathrm{f}(x)]$$

(% o80) $$\mathrm{f}(x) := 6\cos\left(\frac{x}{3}\right)$$

(% o81) $$-2\sin\left(\frac{x}{3}\right)$$

14

kill(x,f); depends(f,x); f(x) := (1-5*x)^4 ; diff(f(x),x) ;

(% o82) $$done$$

(% o83) $$[\mathrm{f}(x)]$$

(% o84) $$\mathrm{f}(x) := (1-5x)^4$$

(% o85) $$-20(1-5x)^3$$

15

kill(x,f); depends(f,x); f(x) := ((4+3*x)^2)^(1/3); diff(f(x),x) ;

(% o86) $done$

(% o87) $[f(x)]$

(% o88) $f(x) := \left((4+3x)^2\right)^{\frac{1}{3}}$

(% o89) $\dfrac{2}{(3x+4)^{\frac{1}{3}}}$

16

kill(x,f); depends(f,x); f(x) := 1 / (1-x^2)^5; diff(f(x),x) ;

(% o90) $done$

(% o91) $[f(x)]$

(% o92) $f(x) := \dfrac{1}{\left(1-x^2\right)^5}$

(% o93) $\dfrac{10x}{\left(1-x^2\right)^6}$

$\longrightarrow$

17

kill(x,f); depends(f,x); f(x) := sqrt(1-x^2); diff(f(x),x) ;

(% o94) $done$

(% o95) $[f(x)]$

(% o96) $f(x) := \sqrt{1 - x^2}$

(% o97) $-\dfrac{x}{\sqrt{1 - x^2}}$

18

kill(x,f); depends(f,x); f(x) := sqrt(cos(4*x)); diff(f(x),x) ;

(% o98) $done$

(% o99) $[f(x)]$

(% o100) $f(x) := \sqrt{\cos(4x)}$

(% o101) $-\dfrac{2\sin(4x)}{\sqrt{\cos(4x)}}$

19

kill(x,f); depends(f,x); f(x) := sqrt(2*x-sin(2*x)); diff(f(x),x) ;

(% o102) $$done$$

(% o103) $$[\mathrm{f}(x)]$$

(% o104) $$\mathrm{f}(x) := \sqrt{2x - \sin{(2x)}}$$

(% o105) $$\frac{2 - 2\cos{(2x)}}{2\sqrt{2x - \sin{(2x)}}}$$

20

kill(x,f); depends(f,x); f(x) := (1+cos(x)^2)^(1/4); diff(f(x),x) ;

(% o108) $$done$$

(% o109) $$[\mathrm{f}(x)]$$

(% o110) $$\mathrm{f}(x) := \left(1 + \cos{(x)}^2\right)^{\frac{1}{4}}$$

(% o111) $$-\frac{\cos{(x)}\,\sin{(x)}}{2\left(\cos{(x)}^2 + 1\right)^{\frac{3}{4}}}$$

21

kill(x,f); depends(f,x); f(x) := sin(sqrt(x)); diff(f(x),x) ;

(% o112) $done$

(% o113) $[f(x)]$

(% o114) $f(x) := \sin\left(\sqrt{x}\right)$

(% o115) $\dfrac{\cos\left(\sqrt{x}\right)}{2\sqrt{x}}$

22

kill(r,ϕ); depends(r,ϕ); r(ϕ) := a*sqrt(cos(2*ϕ)); diff(r(ϕ),ϕ) ;

(% o120) $done$

(% o121) $[r\left(\phi\right)]$

(% o122) $r\left(\phi\right) := a\,\sqrt{\cos\left(2\phi\right)}$

(% o123) $-\dfrac{a\,\sin\left(2\phi\right)}{\sqrt{\cos\left(2\phi\right)}}$

23

(% i131)   kill(r,ϕ); depends(r,ϕ); r(ϕ) := sqrt(2*ϕ +cos(2*ϕ+pi/4)^2); diff(r(ϕ),ϕ) ;

(% o128)   *done*

(% o129) $[\mathrm{r}\,(\phi)]$

(% o130) $$\mathrm{r}\,(\phi) := \sqrt{2\phi + \cos\left(2\phi + \frac{pi}{4}\right)^2}$$

(% o131) $$\frac{2 - 4\cos\left(2\phi + \frac{pi}{4}\right)\sin\left(2\phi + \frac{pi}{4}\right)}{2\sqrt{\cos\left(2\phi + \frac{pi}{4}\right)^2 + 2\phi}}$$

24

(% i135)   kill(f,x); depends(f,x); f(x) := (1+cos(6*x))^(1/3); diff(f(x),x) ;

(% o132)   *done*

(% o133) $[\mathrm{f}(x)]$

(% o134) $$\mathrm{f}(x) := (1 + \cos(6x))^{\frac{1}{3}}$$

(% o135) $$-\frac{2\sin(6x)}{(\cos(6x) + 1)^{\frac{2}{3}}}$$

25

kill(f,x); depends(f,x); f(x) := (1+sin(2*x)) / (1-sin(2*x)); diff(f(x),x);

(% o145) $$done$$

(% o146) $$[\mathrm{f}(x)]$$

(% o147) $$\mathrm{f}(x) := \frac{1 + \sin{(2x)}}{1 - \sin{(2x)}}$$

(% o148) $$\frac{2\cos{(2x)}\ (\sin{(2x)} + 1)}{(1 - \sin{(2x)})^2} + \frac{2\cos{(2x)}}{1 - \sin{(2x)}}$$

26

kill(f,x); depends(f,x); f(x) := cos(pi/4 - x/2)^2; diff(f(x),x);

(% o149) $$done$$

(% o150) $$[\mathrm{f}(x)]$$

(% o151) $$\mathrm{f}(x) := \cos{\left(\frac{pi}{4} - \frac{x}{2}\right)}^2$$

(% o152) $$-\cos{\left(\frac{x}{2} - \frac{pi}{4}\right)}\sin{\left(\frac{x}{2} - \frac{pi}{4}\right)}$$

27

kill(f,x); depends(f,x); f(x) := (exp(a*x) - exp(-a*x))^2; diff(f(x),x);

(% o161) $\qquad done$

(% o162) $\qquad [\mathrm{f}(x)]$

(% o163) $\qquad \mathrm{f}(x) := \left(\exp\left(ax\right) - \exp\left(\left(-a\right)x\right)\right)^2$

(% o164) $\qquad 2\left(\%e^{ax} - \%e^{-ax}\right)\left(a\,\%e^{ax} + a\,\%e^{-ax}\right)$

28

kill(f,x); depends(f,x); f(x) := log(sin(x) + sqrt(1 + sin(x)^2)); diff(f(x),x);

(% o169) $\qquad done$

(% o170) $\qquad [\mathrm{f}(x)]$

(% o171) $\qquad \mathrm{f}(x) := \log\left(\sin\left(x\right) + \sqrt{1 + \sin\left(x\right)^2}\right)$

(% o172) $\qquad \dfrac{\frac{\cos\left(x\right)\sin\left(x\right)}{\sqrt{\sin\left(x\right)^2+1}} + \cos\left(x\right)}{\sqrt{\sin\left(x\right)^2 + 1} + \sin\left(x\right)}$

29

kill(f,x); depends(f,x); f(x) := log(exp(2*x) +sqrt(exp(4*x) + 1)); diff(f(x),x);

(% o173) $done$

(% o174) $[\mathrm{f}(x)]$

(% o175) $\mathrm{f}(x) := \log\left(\exp\left(2x\right) + \sqrt{\exp\left(4x\right) + 1}\right)$

(% o176) $$\dfrac{\dfrac{2\%e^{4x}}{\sqrt{\%e^{4x}+1}} + 2\%e^{2x}}{\sqrt{\%e^{4x}+1} + \%e^{2x}}$$

30

kill(f,x); depends(f,x); f(x) := x^(1/x); diff(f(x),x);

(% o177) $done$

(% o178) $[\mathrm{f}(x)]$

(% o179) $\mathrm{f}(x) := x^{\frac{1}{x}}$

(% o180) $x^{\frac{1}{x}}\left(\dfrac{1}{x^2} - \dfrac{\log\left(x\right)}{x^2}\right)$

15

31

(% i184) kill(f,x); depends(f,x); f(x) := sqrt(1-x^2)+sin(x)^(-1); diff(f(x),x);

(% o181) $$done$$

(% o182) $$[\text{f}(x)]$$

(% o183) $$\text{f}(x) := \sqrt{1-x^2} + \sin(x)^{-1}$$

(% o184) $$-\frac{\cos(x)}{\sin(x)^2} - \frac{x}{\sqrt{1-x^2}}$$