

$$\begin{aligned} &?Pi: \\ &eval(sqrt(3)); \end{aligned} \qquad \qquad \qquad \sqrt{3} \qquad \qquad \qquad (1)$$

$$\begin{aligned} &? +; \\ &?plot \\ &evalf\left(\frac{1}{2}, 2\right); \end{aligned} \qquad \qquad \qquad 0.50 \qquad \qquad \qquad (2)$$

$$\begin{aligned} &?factor \\ &factor(x^8 - 1); \end{aligned} \qquad \qquad \qquad (x - 1) (x + 1) (x^2 + 1) (x^4 + 1) \qquad \qquad \qquad (3)$$

$$\begin{aligned} &factor\left(\frac{(2 \cdot x^2)}{(x^3 - 1)} + \left(\frac{(3 \cdot x)}{x^2 - 1}\right)\right); \\ &\qquad \qquad \qquad \frac{(5 x^2 + 5 x + 3) x}{(x - 1) (x + 1) (x^2 + x + 1)} \end{aligned} \qquad \qquad \qquad (4)$$

$$\begin{aligned} &evalf(e = \exp(1)); \\ &\qquad \qquad \qquad e = 2.718281828 \end{aligned} \qquad \qquad \qquad (5)$$

$$\begin{aligned} &evalf(sqrt(3)) \\ &\qquad \qquad \qquad 1.732050808 \end{aligned} \qquad \qquad \qquad (6)$$

$$\begin{aligned} &evalf(sqrt(3.)) \\ &\qquad \qquad \qquad 1.732050808 \end{aligned} \qquad \qquad \qquad (7)$$

$$\begin{aligned} &evalf(sqrt(3), 2) \\ &\qquad \qquad \qquad 1.7 \end{aligned} \qquad \qquad \qquad (8)$$

$$\begin{aligned} &evalf(sqrt(3), 4) \\ &\qquad \qquad \qquad 1.732 \end{aligned} \qquad \qquad \qquad (9)$$

$$\begin{aligned} &e1 := (x^2 + 2 \cdot x - 1) \cdot (x^2 - 2) \\ &\qquad \qquad \qquad (x^2 + 2 x - 1) (x^2 - 2) \end{aligned} \qquad \qquad \qquad (10)$$

$$\begin{aligned} &expand(e1) \\ &\qquad \qquad \qquad x^4 + 2 x^3 - 3 x^2 - 4 x + 2 \end{aligned} \qquad \qquad \qquad (11)$$

$$\begin{aligned} &e1 := 'e1'; \\ &\qquad \qquad \qquad e1 \end{aligned} \qquad \qquad \qquad (12)$$

$$\begin{aligned} &e2 := (x + n)^5; \\ &\qquad \qquad \qquad (x + n)^5 \end{aligned} \qquad \qquad \qquad (13)$$

$$\begin{aligned} &expand(e2); \\ &\qquad \qquad \qquad n^5 + 5 n^4 x + 10 n^3 x^2 + 10 n^2 x^3 + 5 n x^4 + x^5 \end{aligned} \qquad \qquad \qquad (14)$$

$$\begin{aligned} &e2 := 'e2'; \\ &\qquad \qquad \qquad e2 \end{aligned} \qquad \qquad \qquad (15)$$

$$\begin{aligned} &simplify(\sin(x)^2 + \cos(x)^2, trig); \\ &\qquad \qquad \qquad 1 \end{aligned} \qquad \qquad \qquad (16)$$

?subs;
subs($e^x + \ln(x)$, $x = 1$);
Error, invalid input: subs received $e^x + \ln(x)$, which is not valid for its 1st argument

?subs;
subs($x = 1$, $e^x + \ln(x)$)

$$e + \ln(1) \quad (17)$$

?eval;
eval($e^x + \ln(x)$, $x = 1$);

$$e \quad (18)$$

?solve;
solve($x^2 - 4 \cdot x + 3 = 0$, x);

$$3, 1 \quad (19)$$

solve($x^2 \cdot y + 2 \cdot y - x = 0$, y);

$$\frac{x}{x^2 + 2} \quad (20)$$

solve($x^2 \cdot y + 2 \cdot y - x = 0$, x);

$$\frac{1}{2} \frac{1 + \sqrt{-8y^2 + 1}}{y}, -\frac{1}{2} \frac{-1 + \sqrt{-8y^2 + 1}}{y} \quad (21)$$

?fsolve;
fsolve($x - \cos(x) = 0$, x);

$$0.7390851332 \quad (22)$$

fsolve($x^5 - 3 \cdot x^3 - 1 = 0$, $x = -1 .. 1$);

$$-0.7418139305 \quad (23)$$

fsolve($x^5 - 3 \cdot x^3 - 1 = 0$, x);

$$-1.668777593, -0.7418139305, 1.782308780 \quad (24)$$

fsolve($x^5 - 3 \cdot x^3 - 1 = 0$, $x = -2 .. 2$);

$$-1.668777593, -0.7418139305, 1.782308780 \quad (25)$$

?solve
solve($\{4 \cdot x + 3 \cdot y = 10, 3 \cdot x - y = 1\}$, $\{x, y\}$);

$$\{x = 1, y = 2\} \quad (26)$$

$f := x \rightarrow e^x - \sin x$

$$x \rightarrow e^x - \sin x \quad (27)$$

$f(1)$;

$$e - \sin x \quad (28)$$

$f := 'f'$;

$$f \quad (29)$$

$f := x \rightarrow e^x - \sin(x)$;

$$x \rightarrow e^x - \sin(x) \quad (30)$$

$f(1)$;

$$f(-1) \quad e - \sin(1) \quad (31)$$

$$\quad \frac{1}{e} + \sin(1) \quad (32)$$

$$\begin{array}{l} ?D; \\ D(f) \ (1); \end{array} \quad x \rightarrow e^x \ln(e) - \cos(x) \quad (33)$$

$$D(f); \quad x \rightarrow e^x \ln(e) - \cos(x) \quad (34)$$

$$D(f) \ (1); \quad e \ln(e) - \cos(1) \quad (35)$$

$$\begin{array}{l} ?D; \\ D(f) \ (0) \end{array} \quad 0 \quad (36)$$

$$D(f) \ (1); \quad x \rightarrow e^x \ln(e) - \cos(x) \quad (37)$$

$$D(f) \ (2); \quad 2 \ (x \rightarrow e^x \ln(e) - \cos(x)) \quad (38)$$

$$\begin{array}{l} ?diff; \\ diff(f(x), x); \end{array} \quad e^x \ln(e) - \cos(x) \quad (39)$$

$$diff(f(x), x\$2); \quad e^x \ln(e)^2 + \sin(x) \quad (40)$$

$$D(f) \ (x); \quad e^x \ln(e) - \cos(x) \quad (41)$$

$$(D@@@2)(f) \ (x); \quad (x \rightarrow e^x \ln(e)^2 + \sin(x)) \ x \quad (42)$$

$$\begin{array}{l} ?D; \\ ?Int; \\ Int(f(x), x=-1..1); \end{array} \quad \int_{-1}^1 (e^x - \sin(x)) \ \mathrm{d}x \quad (43)$$

$$eval(Int(f(x), x=-1..1)); \quad \int_{-1}^1 (e^x - \sin(x)) \ \mathrm{d}x \quad (44)$$

$$\int f(x) \mathrm{d}x; \quad \frac{e^x}{\ln(e)} + \cos(x) \quad (45)$$

$$\int_{-1}^1 f(x) \, \mathrm{d}\textcolor{violet}{x}$$

$$\frac{e^2-1}{e\ln(e)}$$
(46)

$$f=\textcolor{teal}{f}'$$

$$\textcolor{blue}{f}=f$$
(47)

$$f:=\textcolor{teal}{f}';$$

$$\textcolor{blue}{f}$$
(48)

$$g:=x\rightarrow e^x-\sin(x)$$

$$x\rightarrow e^x-\sin(x)$$
(49)

$$g(0);$$

$$\textcolor{blue}{1}$$
(50)

$$\mathrm{D}(g)\left(1\right)$$

$$x\rightarrow e^x\ln(e)-\cos(x)$$
(51)

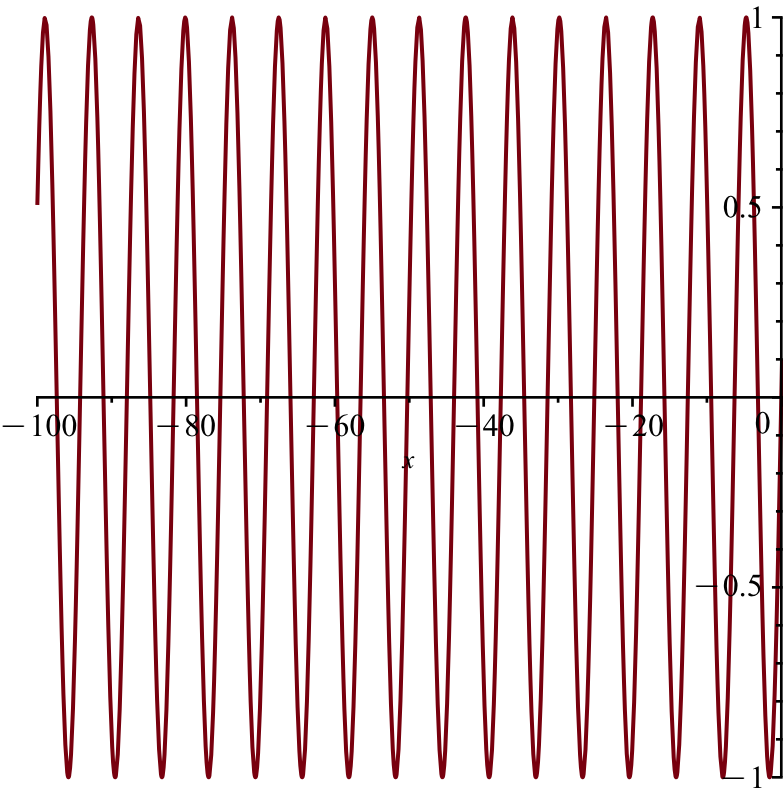
$$\mathrm{D}(g)\left(0\right)$$

$$\ln(e)-1$$
(52)

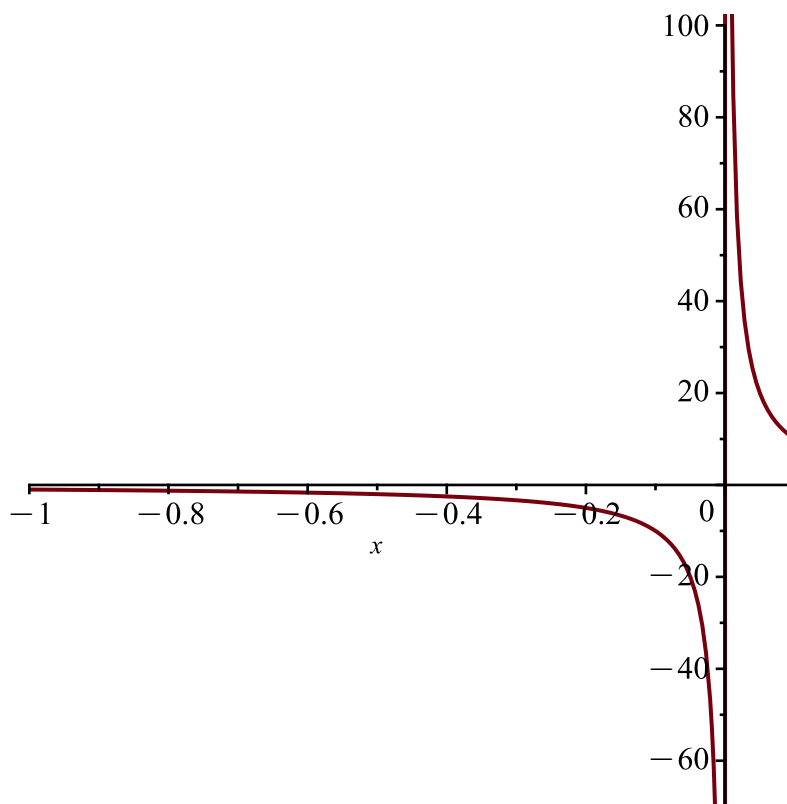
$$g:=\textcolor{teal}{g}'$$

$$\textcolor{blue}{g}$$
(53)

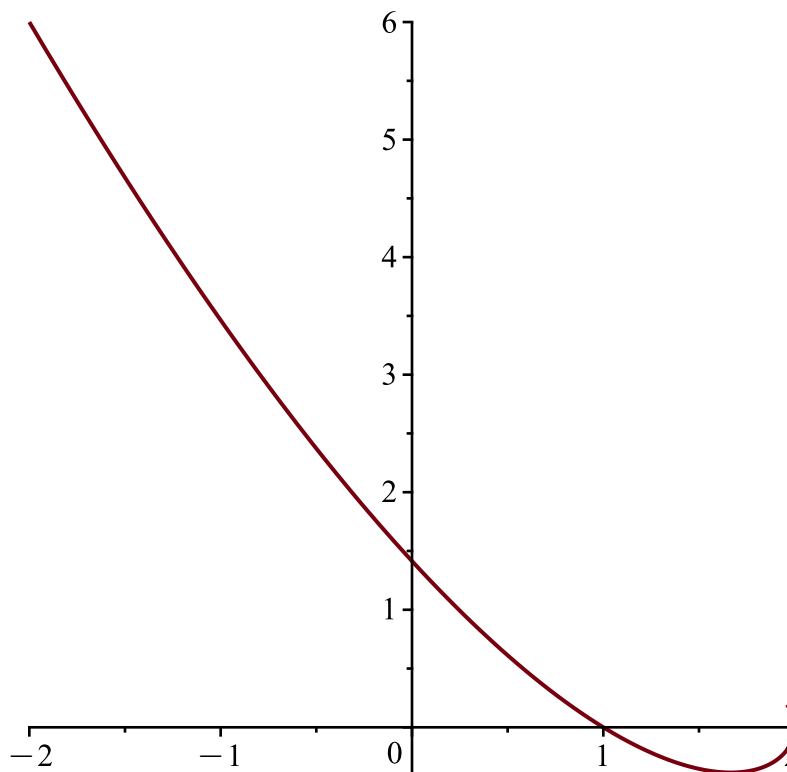
$$plot(\sin(x),x=-100\dots 100);$$



$$plot\left(\frac{1}{x},x=-1\dots 1\right);$$



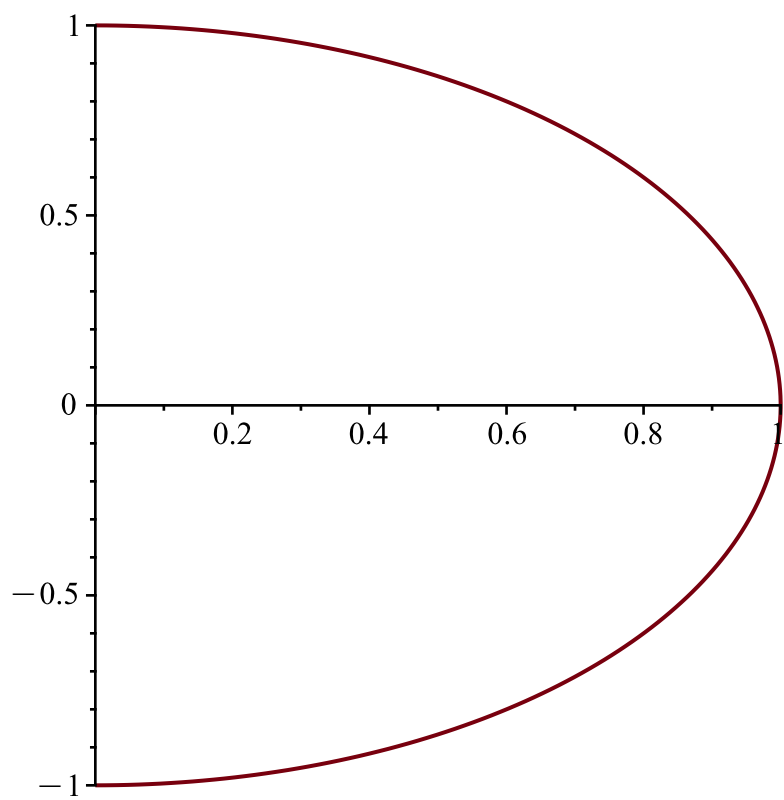
`plot([2 - t2, t - t3, t = -2 ... 2]);`



`plot([sin(t), cos(t), t = 0 ... pi]);`

Error, (in plot) expecting a real constant as range endpoint but received pi

`plot([sin(t), cos(t), t = 0 ... Pi])`



$\text{plot}\left(\left[\sin(t), \cos(t), t=0..\frac{.3\cdot \text{Pi}}{2}\right]\right)$

