```
> evalf(1./2)
```

$$0.5000000000 \quad (1)$$

```
> evalf(exp(1));
```

$$2.718281828 \quad (2)$$

```
> evalf(sqrt(3.0));
```

$$1.732050808 \quad (3)$$

```
> evalf(Pi);
```

$$3.141592654 \quad (4)$$

```
> evalf(sin(0.1));
```

$$0.09983341665 \quad (5)$$

```
> a := (x^2+2*x-1)^3*(x^2-2);
```

$$a := (x^2+2x-1)^3 (x^2-2) \quad (6)$$

```
> b := (x+n)^5;
```

$$b := (x+n)^5 \quad (7)$$

```
> expand(a);
```

$$x^8+6x^7+7x^6-16x^5-27x^4+14x^3+17x^2-12x+2 \quad (8)$$

```
> expand(b);
```

$$n^5+5n^4x+10n^3x^2+10n^2x^3+5nx^4+x^5 \quad (9)$$

```
> a :='a'
```

$$a := a \quad (10)$$

```
> b :='b'
```

$$b := b \quad (11)$$

```
> factor(x^8-1);
```

$$(x-1)(x+1)(x^2+1)(x^4+1) \quad (12)$$

```
> factor(2*x^2/(x^3-1))+factor(3*x/(x^2-1));
```

$$\frac{2x^2}{(x-1)(x^2+x+1)}+\frac{3x}{(x-1)(x+1)} \quad (13)$$

```
> factor(2*x^2/(x^3-1)+3*x/(x^2-1));
```

$$\frac{x(5x^2+5x+3)}{(x-1)(x^2+x+1)(x+1)} \quad (14)$$

```
> simplify(sin(x)^2+cos(x)^2, trig);
```

$$1 \quad (15)$$

```
> subs(x=1, exp(x)+ln(x));
```

$$\mathrm{e} + \ln(1) \tag{16}$$

```
> evalf(subs(x = 1, exp(x) + ln(x)));
```

$$2.718281828 \tag{17}$$

```
> solve(X^2 - 4 X + 3 = 0, X);
```

$$3, 1 \tag{18}$$

```
> solve(x^2 y + 2 y - x = 0, y);
```

$$\frac{x}{x^2 + 2} \tag{19}$$

```
> fsolve(x - cos(x) = 0, x);
```

$$0.7390851332 \tag{20}$$

```
> fsolve(x^5 - 3 x^3 - 1 = 0, x);
```

$$-1.668777593,\ -0.7418139305,\ 1.782308780 \tag{21}$$

```
> solve({4 x + 3 y = 10, 3 x - y = 1}, {x, y});
```

$$\{x = 1, y = 2\} \tag{22}$$

```
> f := (x) -> exp(x) - sin(x)
```

$$f := x \mapsto \mathrm{e}^{x} - \sin(x) \tag{23}$$

```
> evalf(f(0));
```

$$1. \tag{24}$$

```
> eval(f(-1));
```

$$\mathrm{e}^{-1} + \sin(1) \tag{25}$$

```
> D(f)(0);
```

$$0 \tag{26}$$

```
> D(f)(-1);
```

$$\mathrm{e}^{-1} - \cos(1) \tag{27}$$

```
> diff(f(x), x);
```

$$\mathrm{e}^{x} - \cos(x) \tag{28}$$

```
> (D@@2)(f);
```

$$x \mapsto \mathrm{e}^{x} + \sin(x) \tag{29}$$

```
> D(f);
```

$$x \mapsto \mathrm{e}^{x} - \cos(x) \tag{30}$$

```
> diff(f(x), x$2);
```

$$\mathrm{e}^{x} + \sin(x) \tag{31}$$

```
> int(f(x), x);
```

$$\cos(x) + \mathrm{e}^{x} \tag{32}$$

```
> int(f(x), x = -1..1);
```

$$-\mathrm{e}^{-1} + \mathrm{e} \tag{33}$$

```
> f := 'f'
```

$$f := f \tag{34}$$

```
> g := exp(x) - sin(x);
```

$$g := e^{x} - \sin(x) \tag{35}$$

```
> eval(g, x = 0);
```

$$1 \tag{36}$$

```
> D(g);
```

$$D\left(e^{x}\right) - D(\sin(x)) \tag{37}$$

```
> g1 := diff(g, x);
```

$$g1 := e^{x} - \cos(x) \tag{38}$$

```
> f := diff(g, x$2);
```

$$f := e^{x} + \sin(x) \tag{39}$$

```
> g1(0);
```

$$\left(e^{x}\right)(0) - \cos(x)(0) \tag{40}$$

```
> eval(g1, x = 0);
```

$$0 \tag{41}$$

```
> eval(f, x = 0);
```

$$1 \tag{42}$$

```
> int(g, x);
```

$$\cos(x) + e^{x} \tag{43}$$

```
> int(g, x = -1 .. 1);
```

$$-e^{-1} + e \tag{44}$$

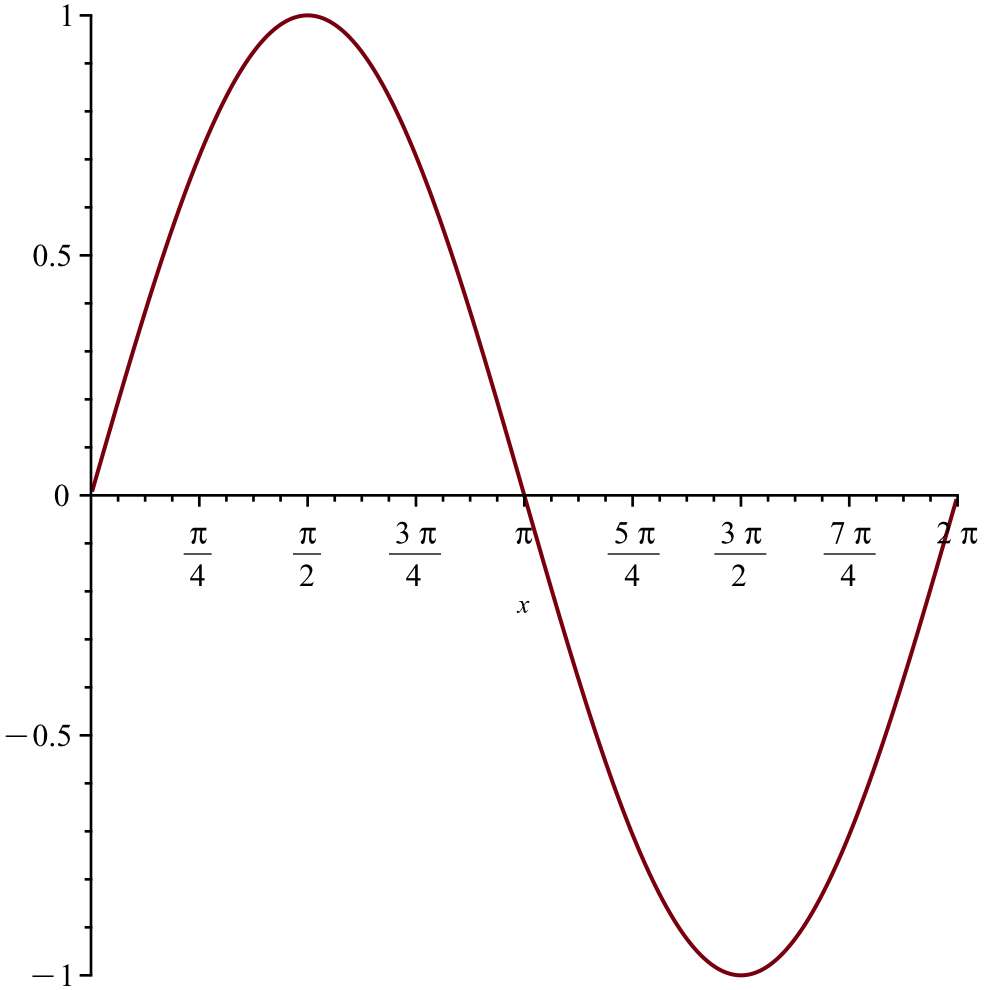
```
> limit(sin(x)/x, x = 0);
```

$$1 \tag{45}$$

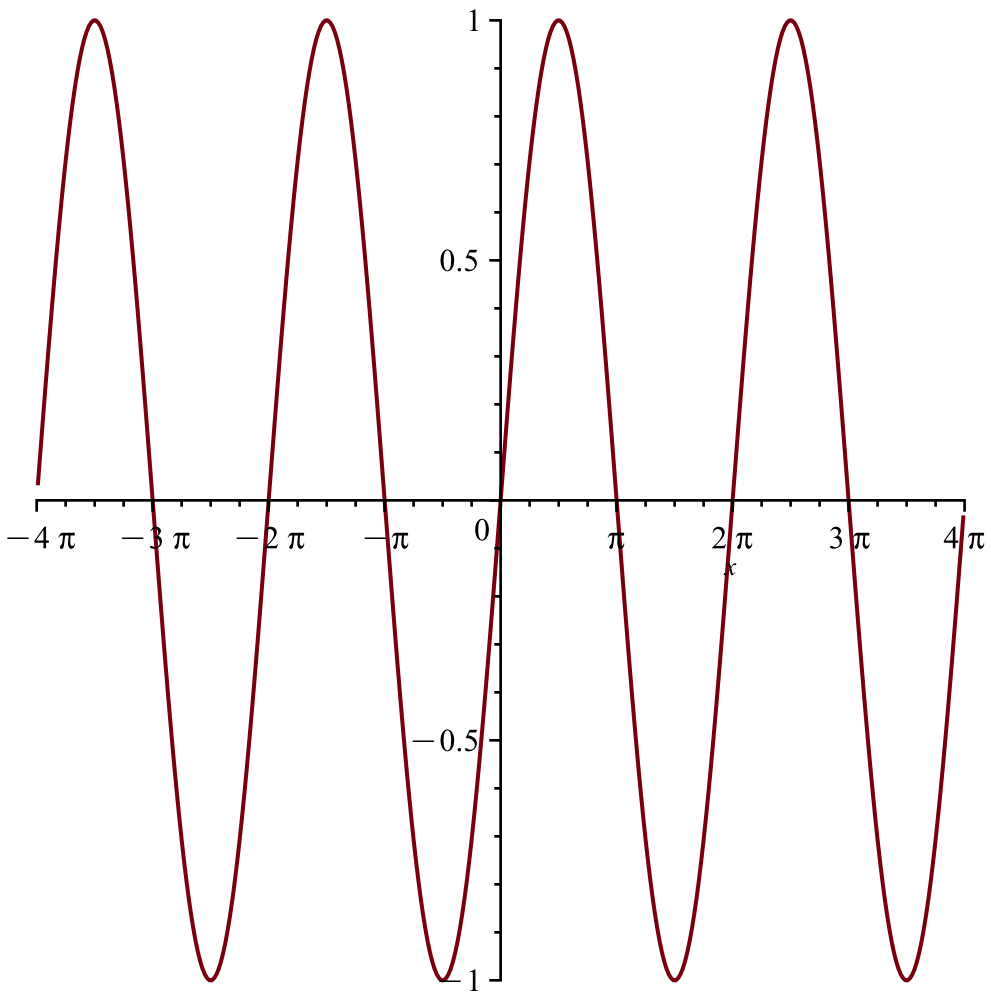
```
> limit((cos(x) + 1)/(x - Pi), x = Pi);
```

$$0 \tag{46}$$

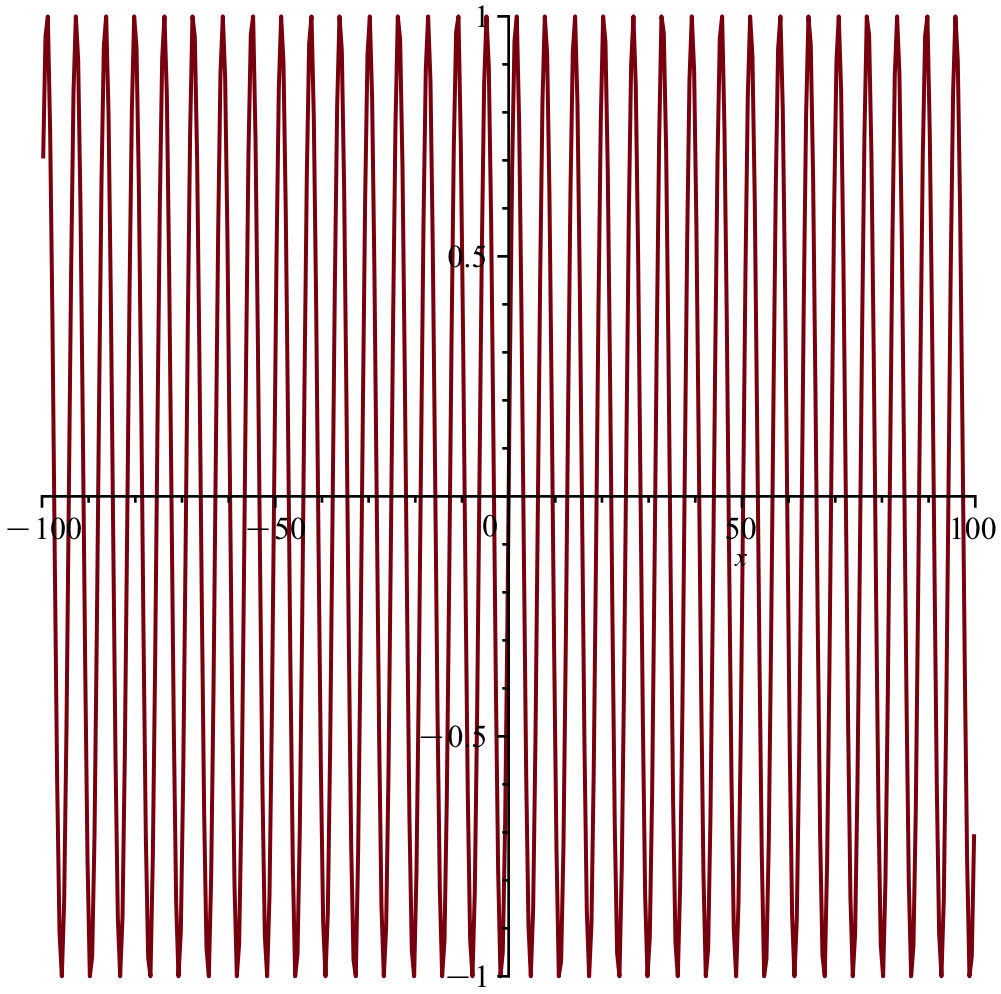
```
> plot(sin(x), x = 0 .. 2 Pi);
```



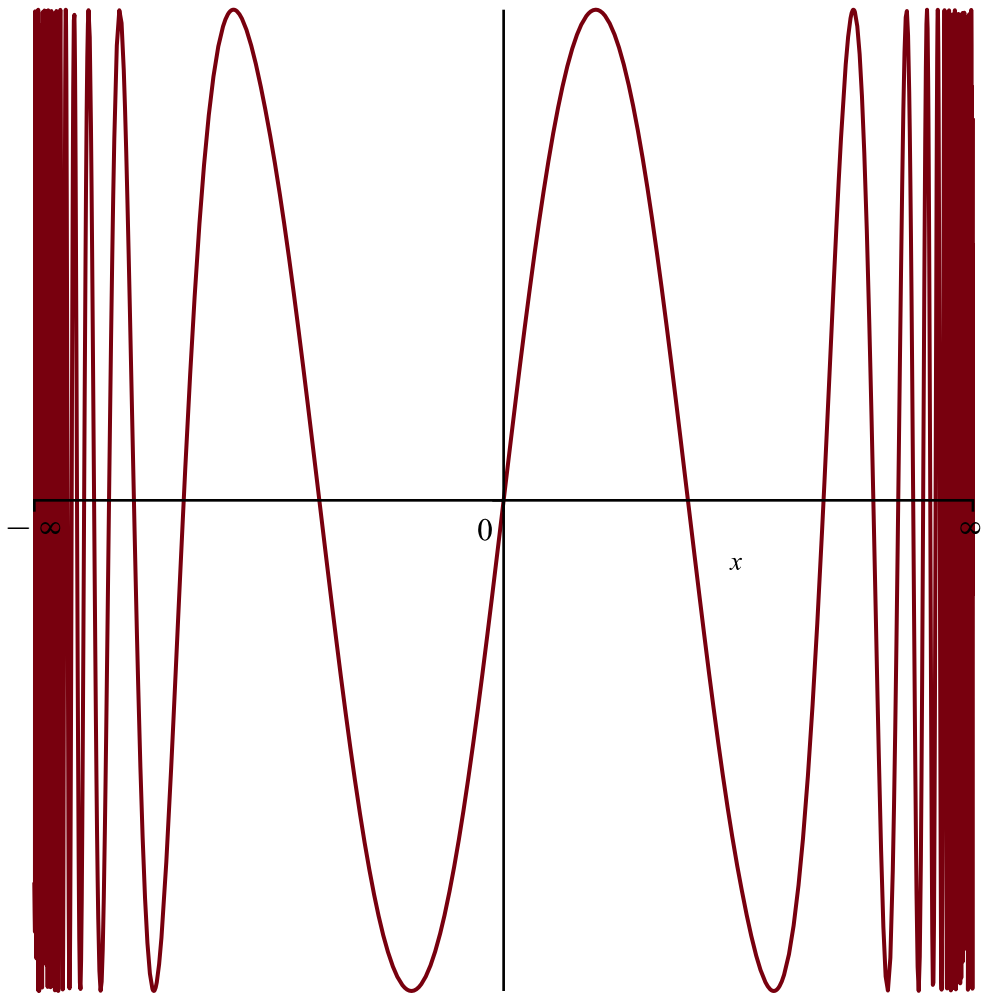

```
> plot(sin(x), x = -4 Pi..4 Pi);
```



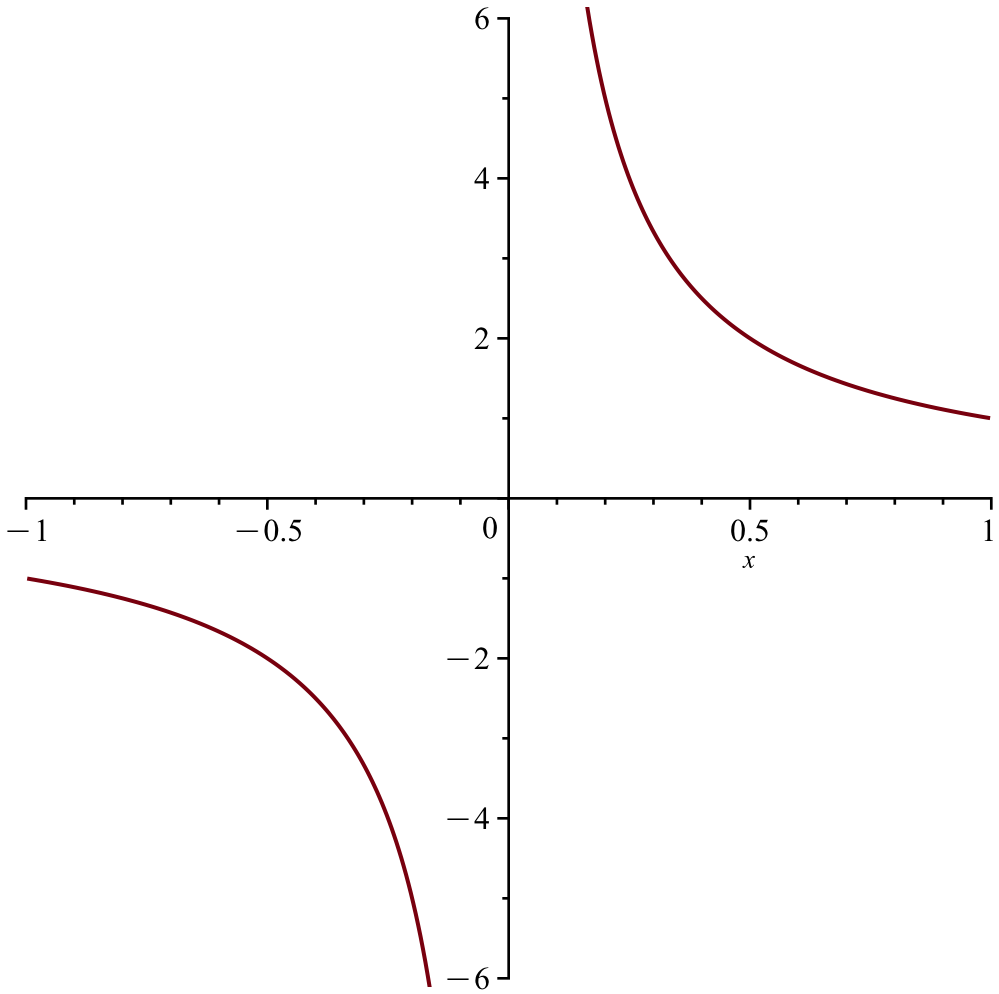

```
> plot(sin(x), x = -100..100);
```




```
> plot(sin(x), x = -infinity..infinity);
```



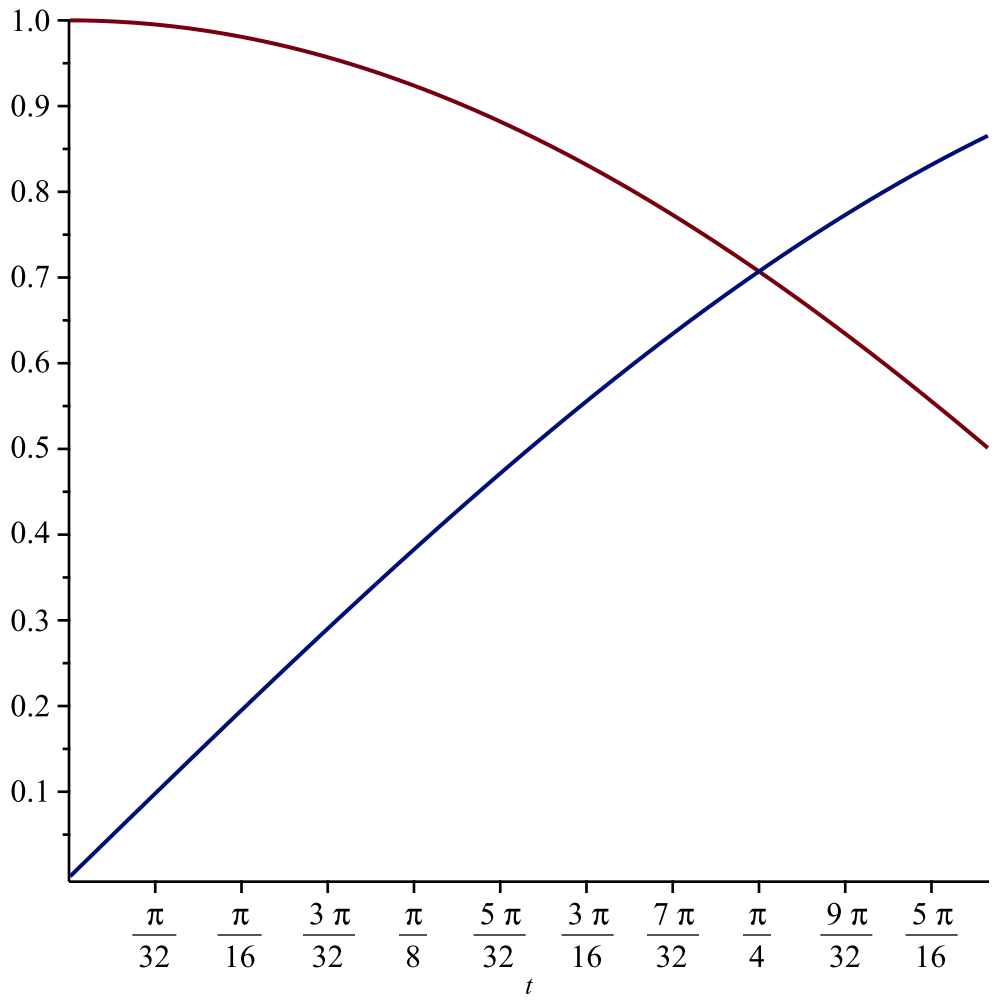
> $plot\left(\frac{1}{x}, x = -1..1\right);$



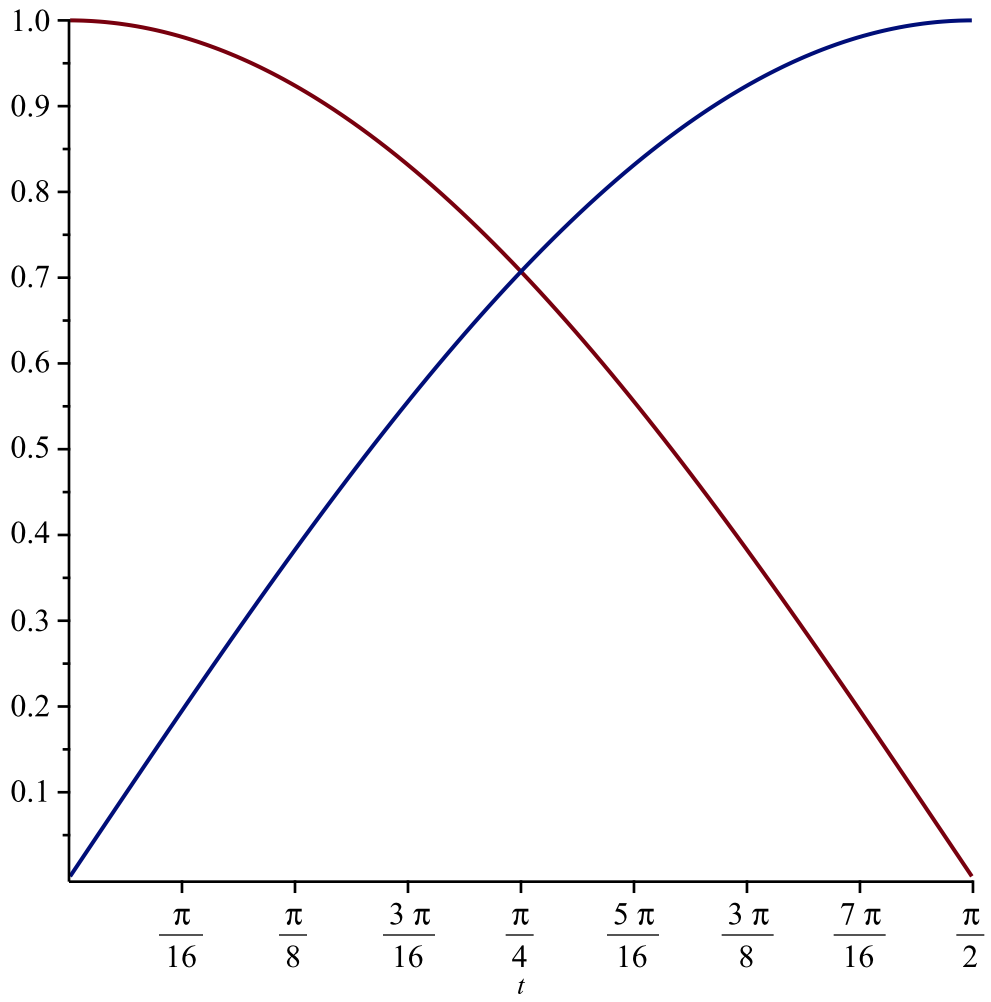
> $plot\left(\left[\cos(t), t=0..\frac{\mathrm{Pi}}{6}\right]\right);$

Error, (in plot) incorrect first argument [cos(t), t = 0 .. 1/6*Pi]

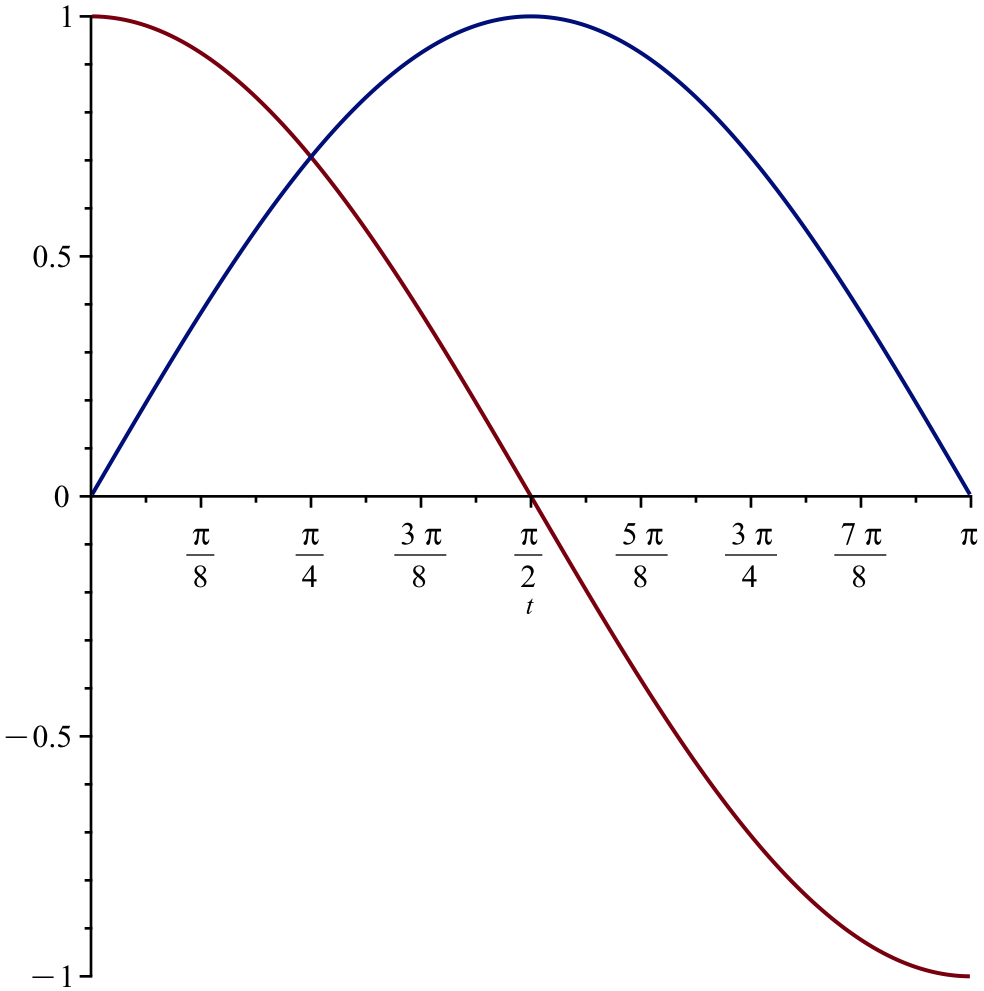
> $plot\left(\left[\cos(t), \sin(t)\right], t=0..\frac{\mathrm{Pi}}{3}\right);$



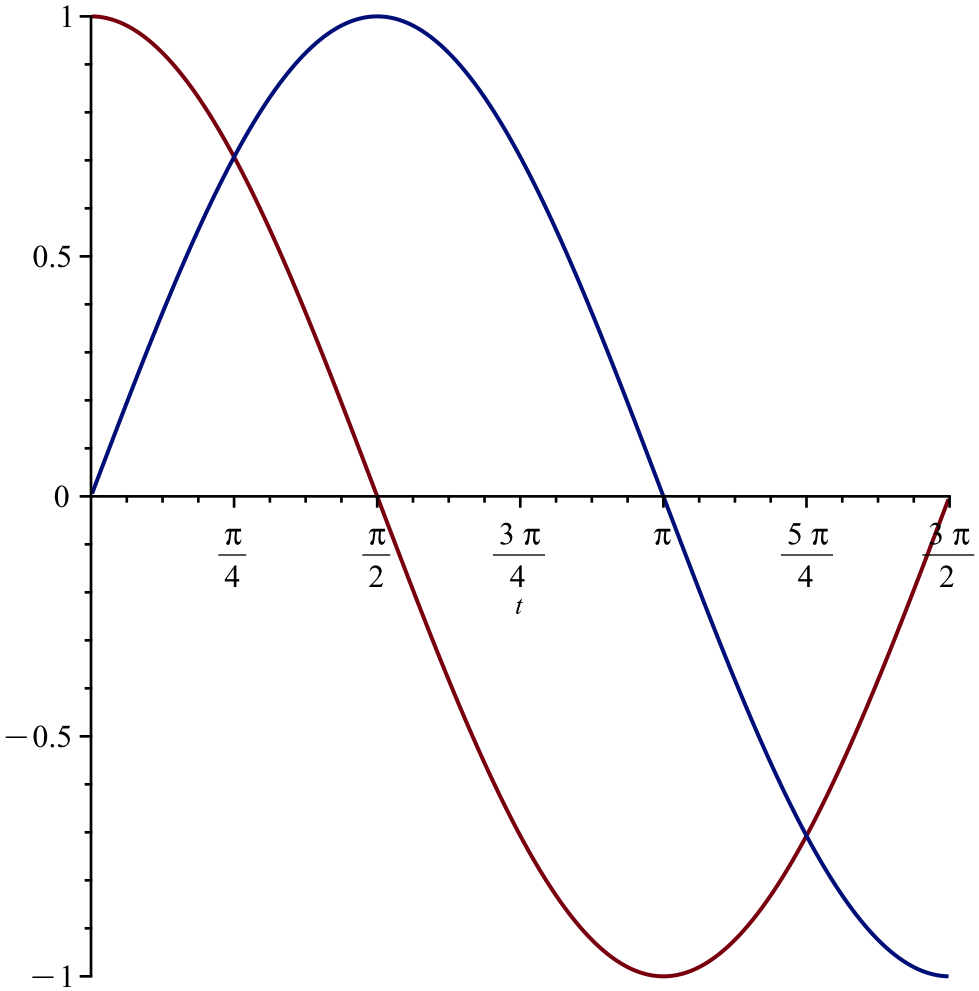

```
> plot( [cos(t), sin(t)], t = 0 .. Pi/2 );
```



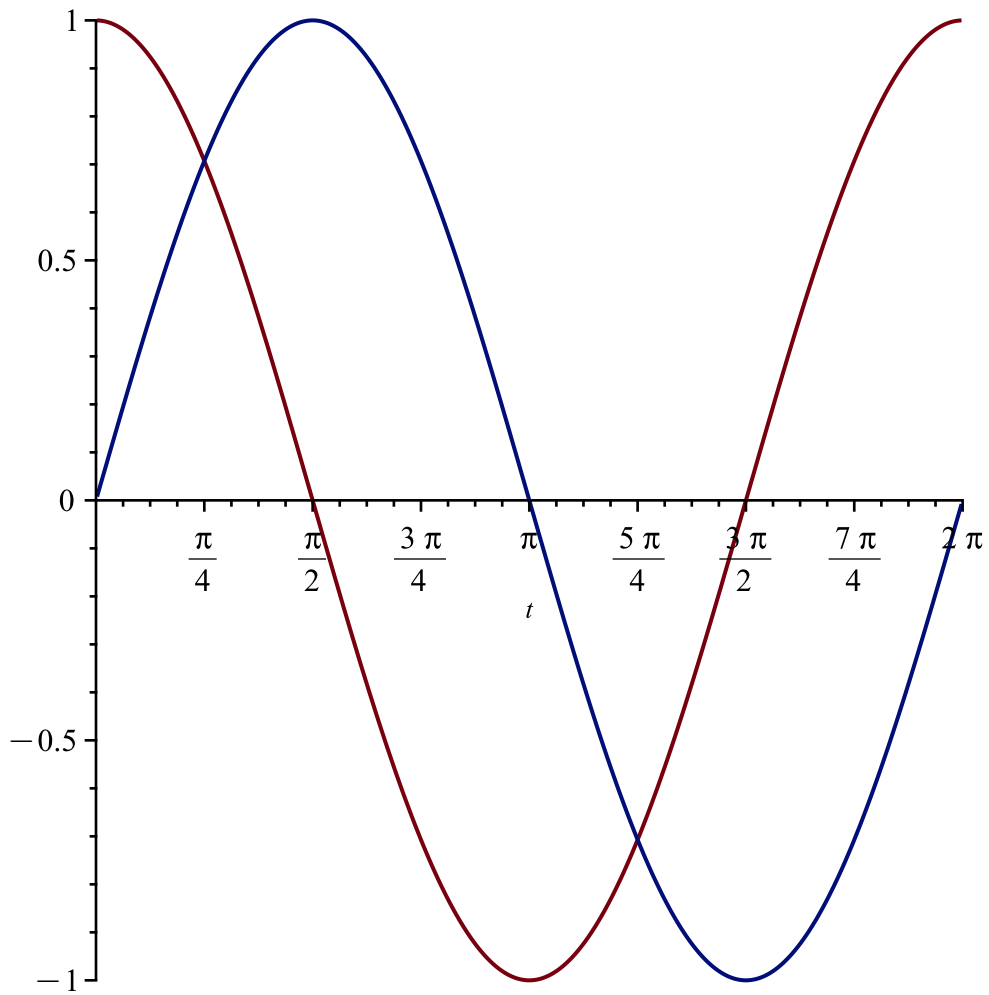

```
> plot( [cos(t), sin(t) ], t = 0 ..Pi);
```



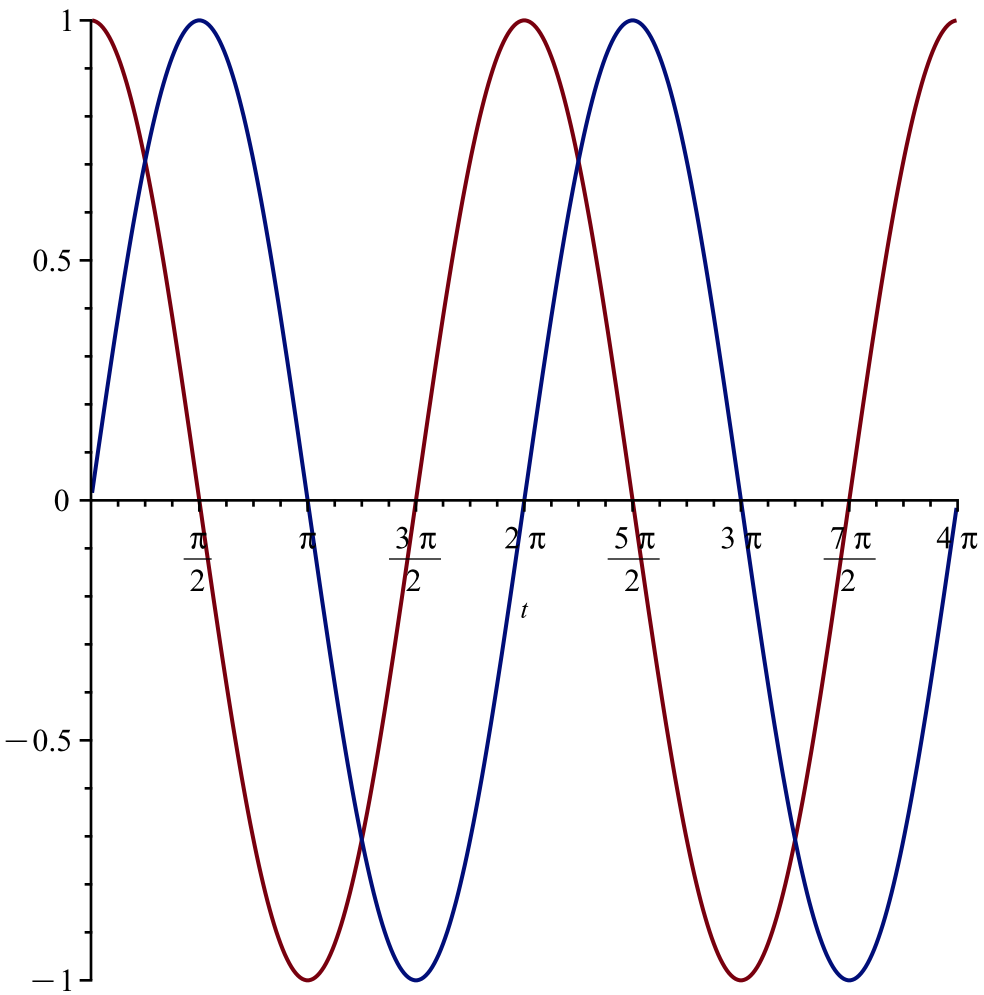
> $plot\left([\cos(t), \sin(t)], t = 0 .. \frac{3\ \mathrm{Pi}}{2} \right);$



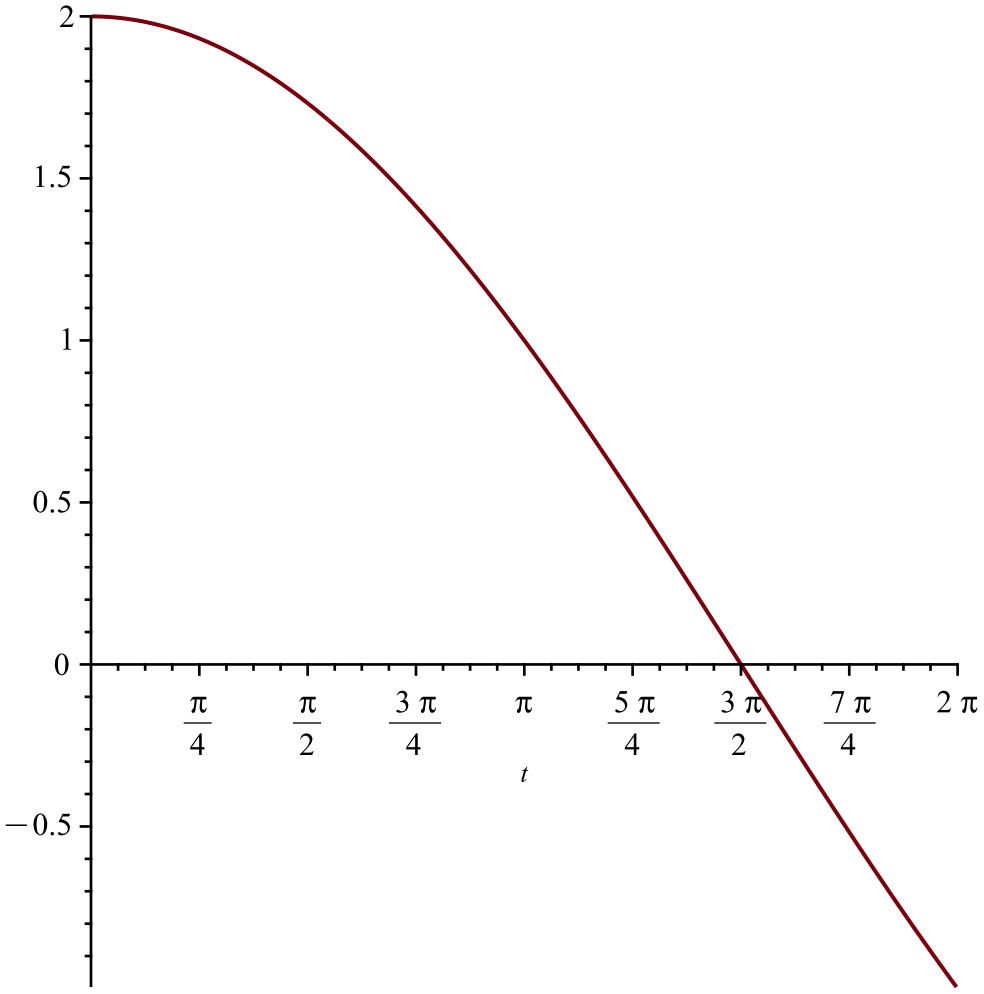

```
> plot( [cos(t), sin(t) ], t = 0 ..2 Pi);
```



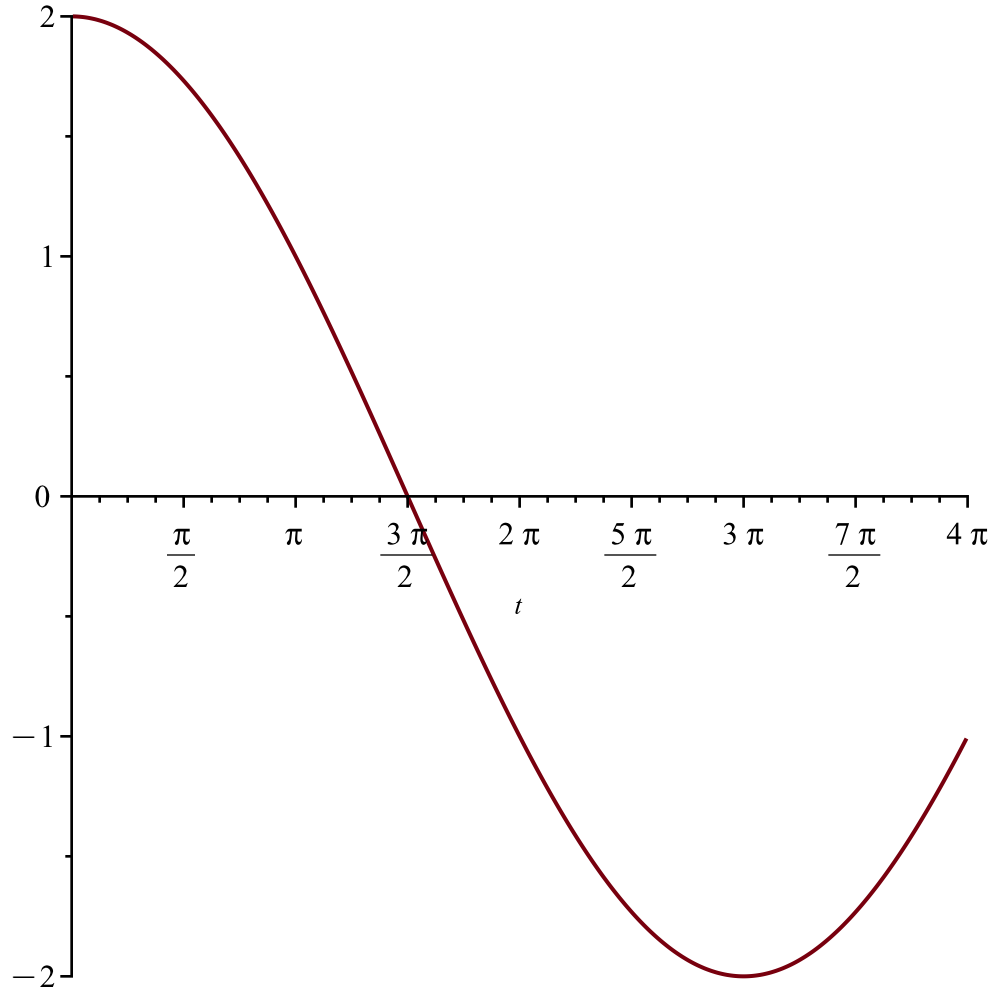

```
> plot( [cos(t), sin(t) ], t = 0 ..4 Pi );
```



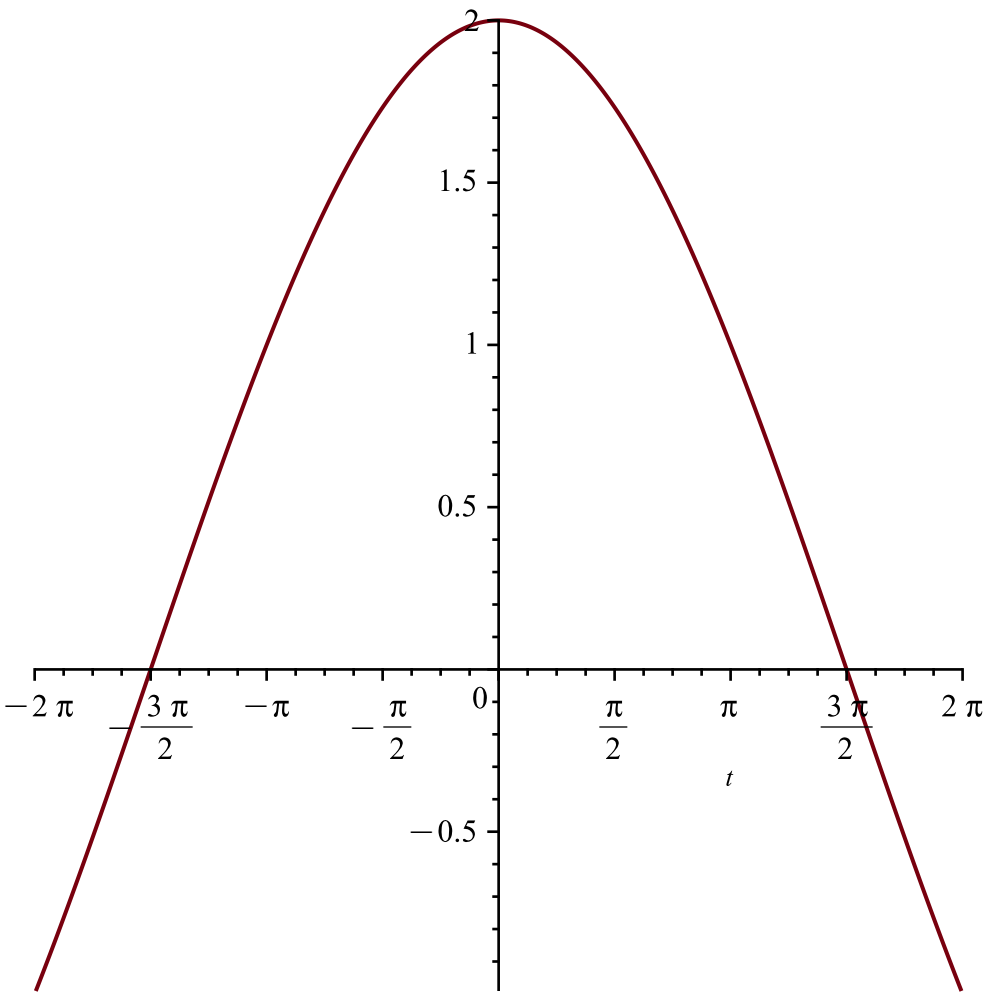

```
> plot(2*cos(t/3), t=0..2Pi);
```



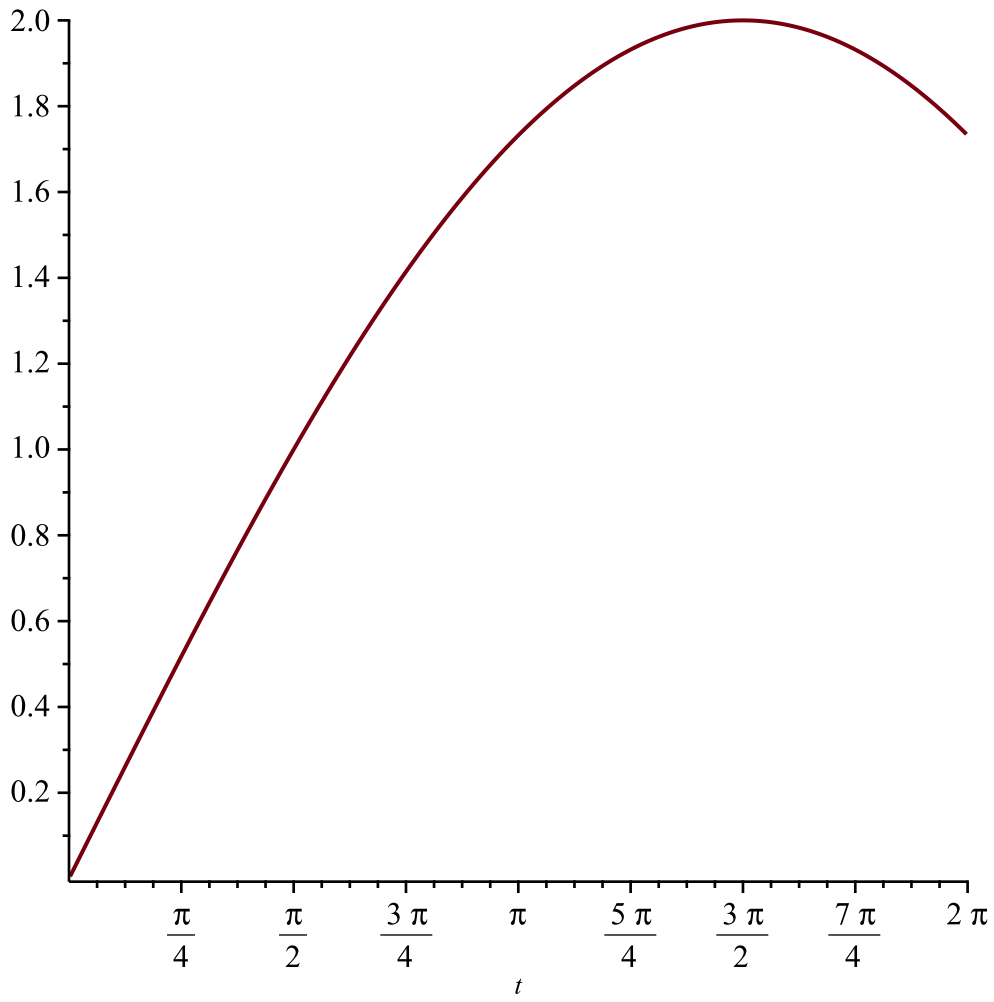
> $plot\left(2\cos\left(\frac{t}{3}\right), t = 0..4\ \mathrm{Pi}\right);$



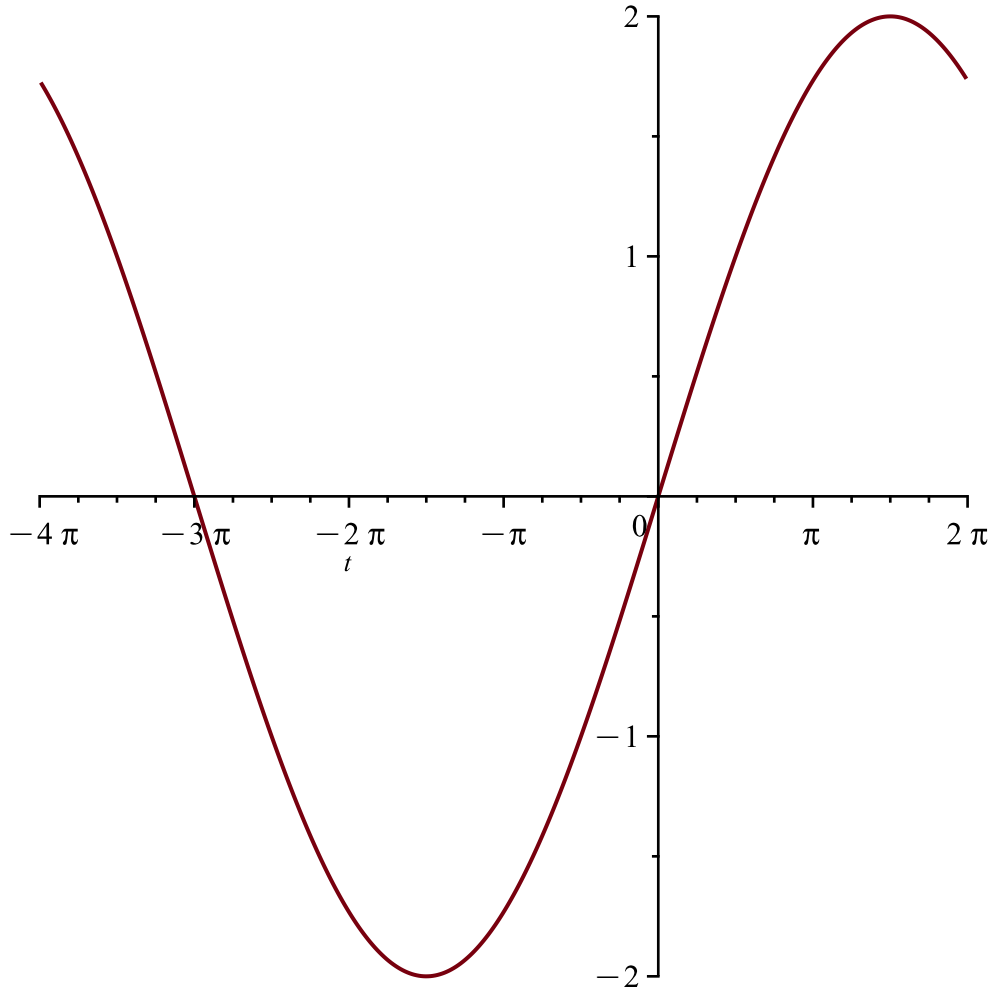

```
> plot(2 cos(t/3), t=-2 Pi..2 Pi);
```



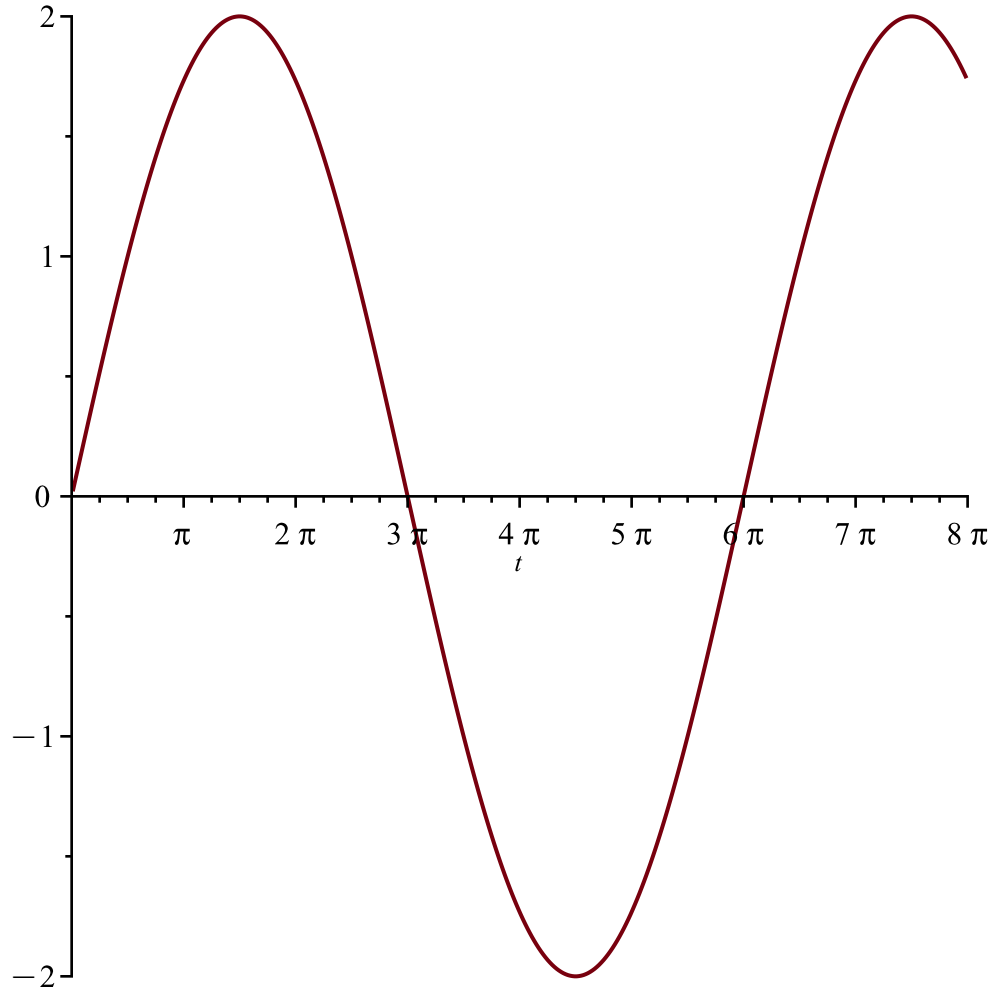
> $plot\left(2\sin\left(\frac{t}{3}\right), t=0..2\mathrm{Pi}\right);$



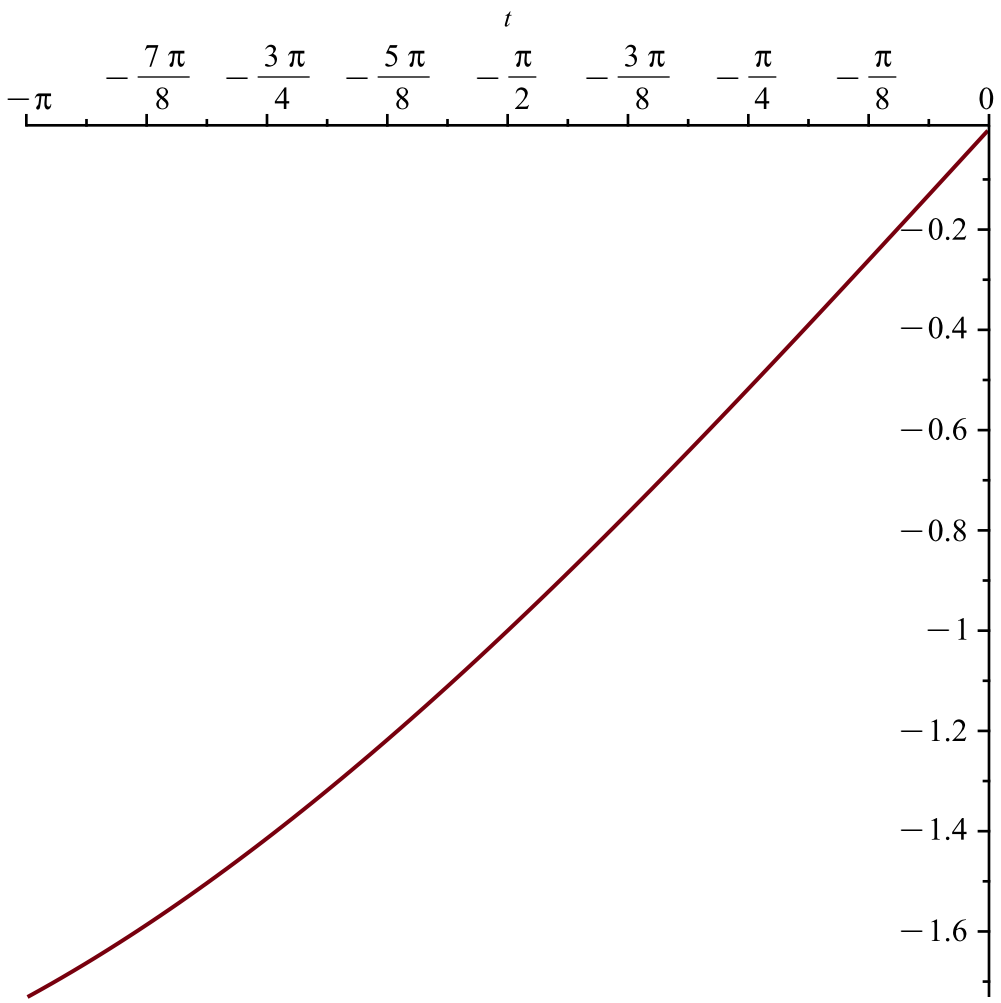

```
> plot(2 sin(t/3), t=-4 Pi..2 Pi);
```



> $plot\left(2\sin\left(\frac{t}{3}\right), t = 0..8\ \mathrm{Pi}\right);$



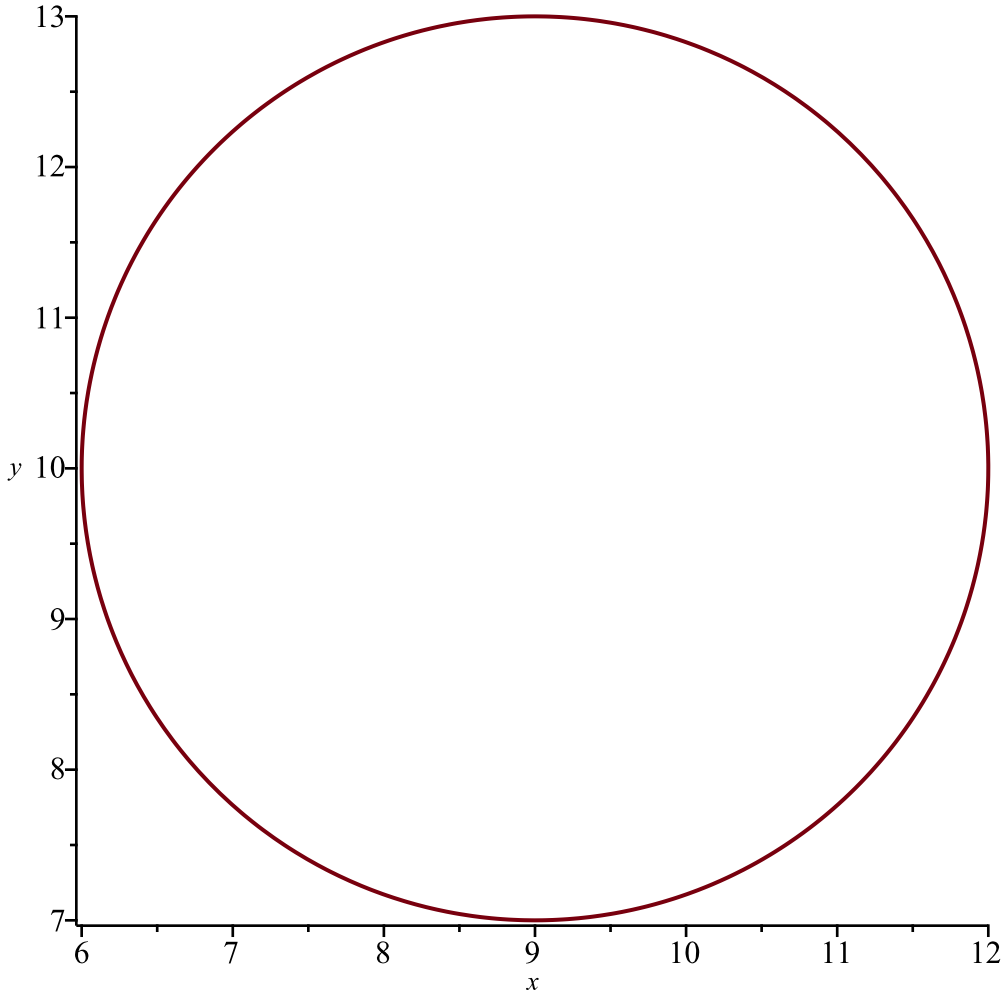

```
> plot(2 sin(t/3), t=-Pi..0);
```



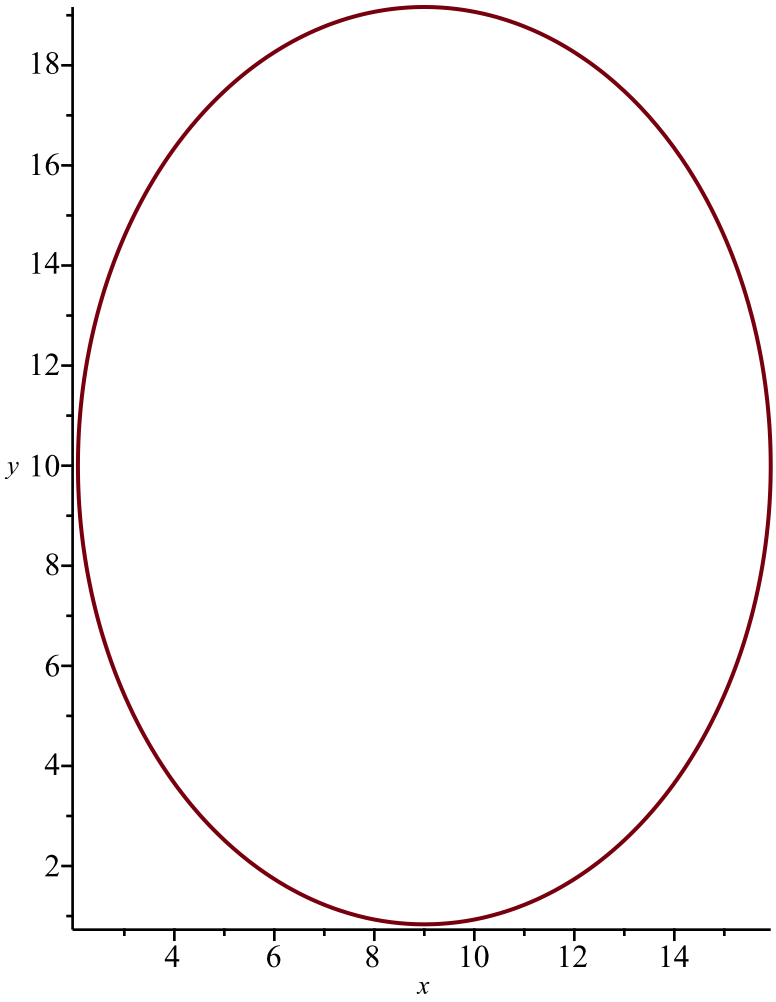

```
> with(plots);
```

[*animate*, *animate3d*, *animatecurve*, *arrow*, *changecoords*, *complexplot*, *complexplot3d*, *conformal*, *conformal3d*, *contourplot*, *contourplot3d*, *coordplot*, *coordplot3d*, *densityplot*, *display*, *dualaxisplot*, *fieldplot*, *fieldplot3d*, *gradplot*, *gradplot3d*, *implicitplot*, *implicitplot3d*, *inequal*, *interactive*, *interactiveparams*, *intersectplot*, *listcontplot*, *listcontplot3d*, *listdensityplot*, *listplot*, *listplot3d*, *loglogplot*, *logplot*, *matrixplot*, *multiple*, *odeplot*, *pareto*, *plotcompare*, *pointplot*, *pointplot3d*, *polarplot*, *polygonplot*, *polygonplot3d*, *polyhedra_supported*, *polyhedraplot*, *rootlocus*, *semilogplot*, *setcolors*, *setoptions*, *setoptions3d*, *shadebetween*, *spacecurve*, *sparsematrixplot*, *surfdata*, *textplot*, *textplot3d*, *tubeplot*] **(47)**

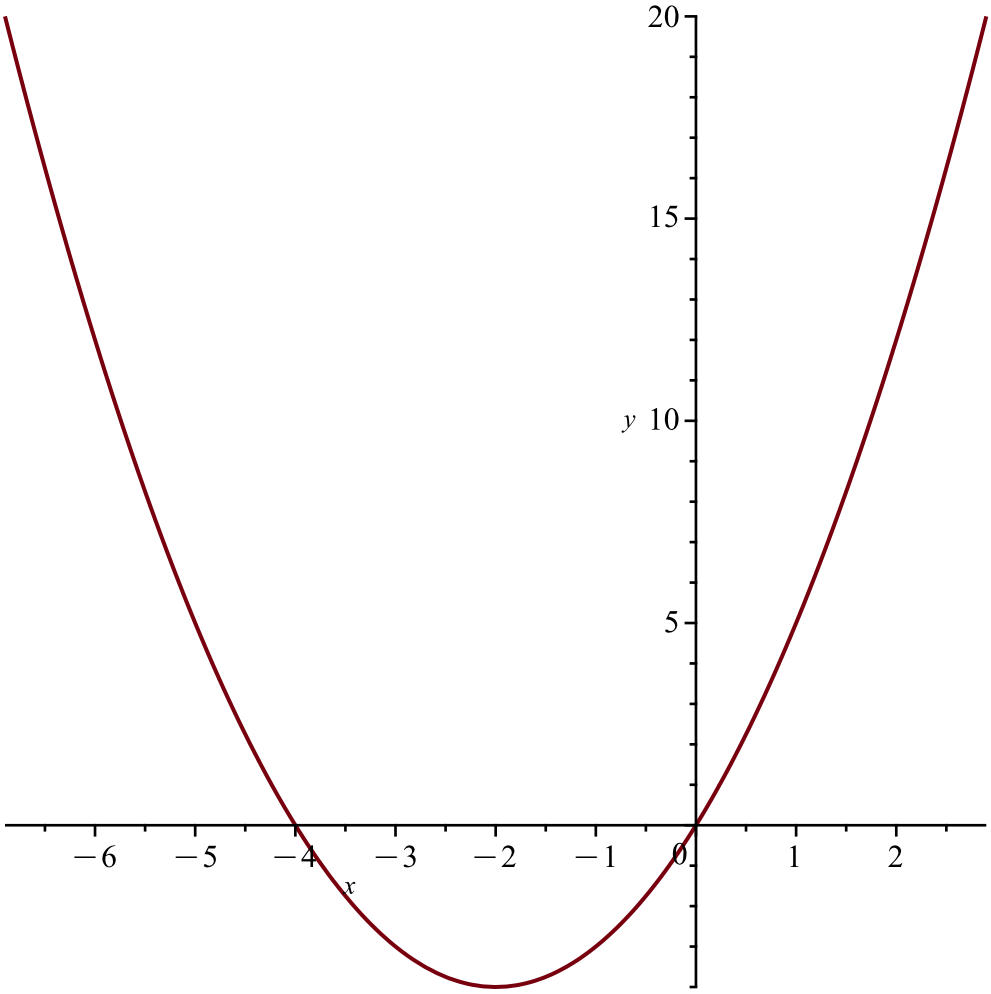
```
> implicitplot( (x − 9)^2 + (y − 10)^2 = 9, x = 4..14, y = 5..15);
```



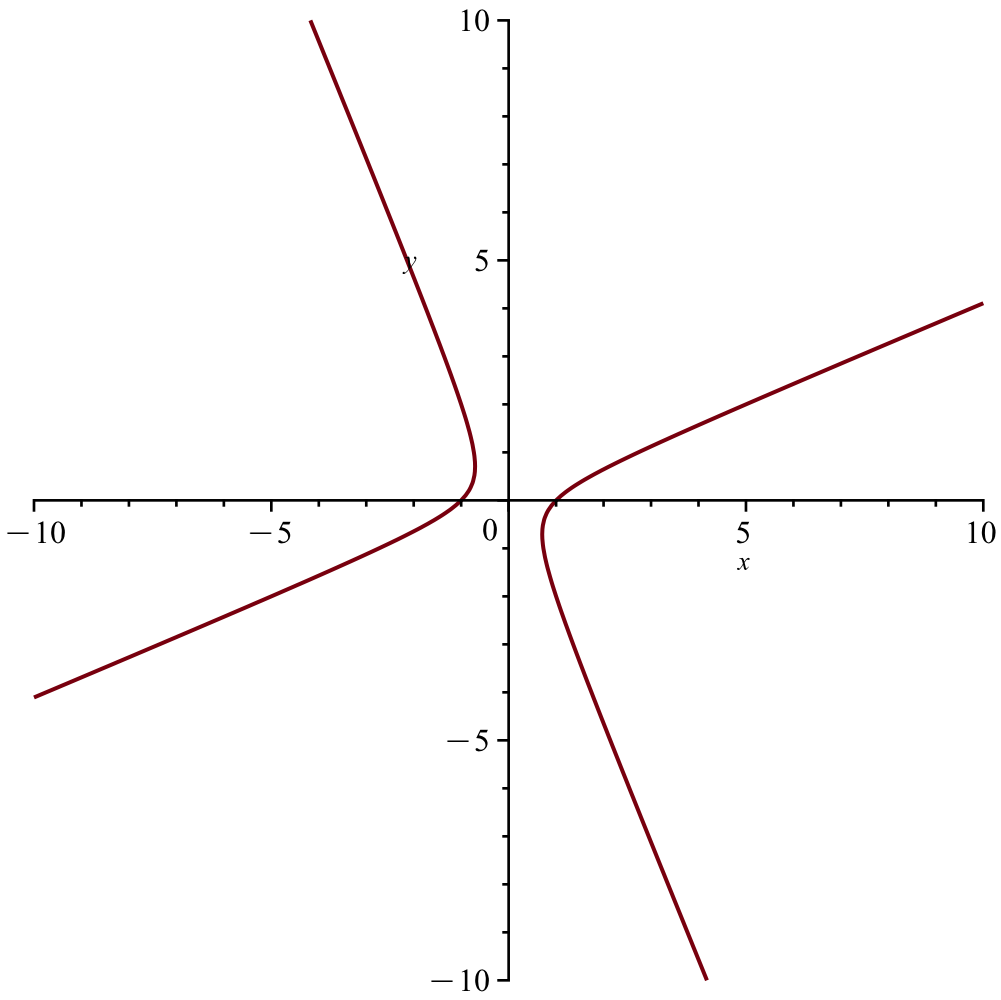
> $implicitplot\left(\frac{1}{4} * (x-9)\text{^}2 + \frac{1}{7}\ (y-10)\text{^}2 = 12, x = 0..24, y = 0..24\right);$



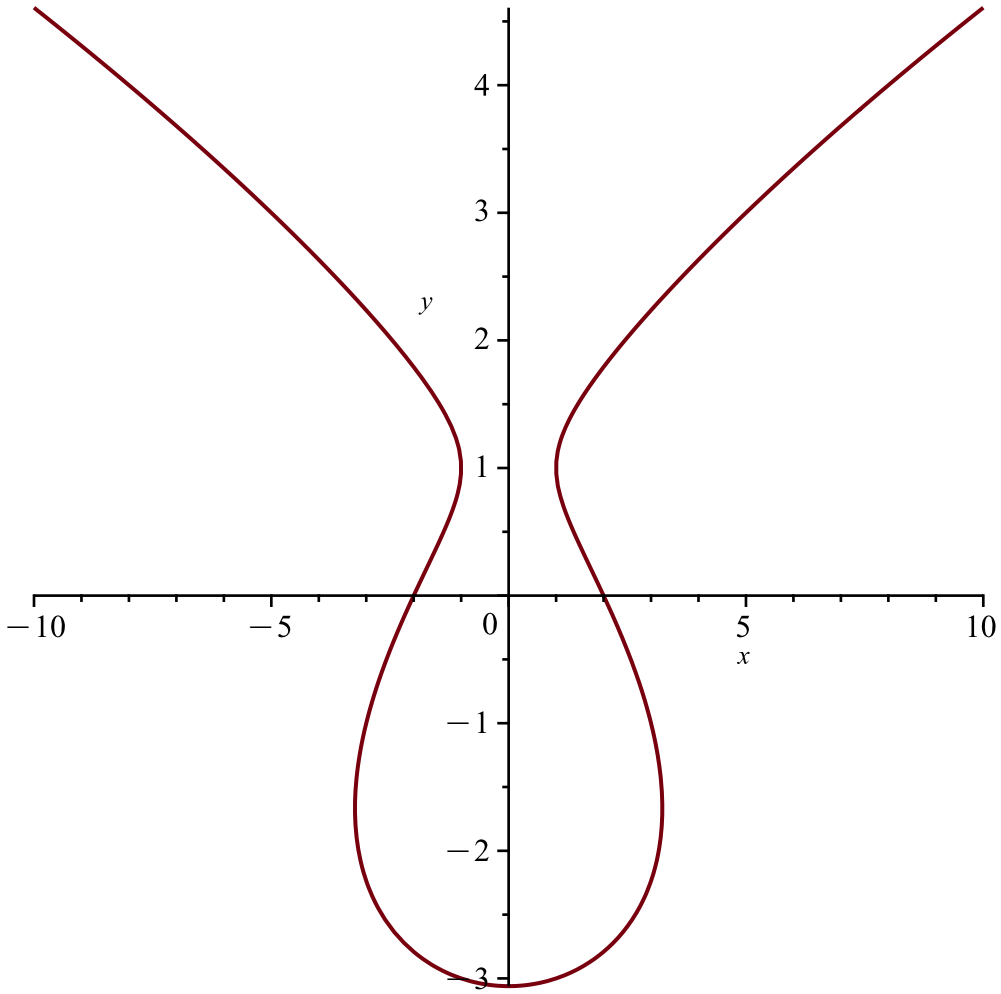
> $implicitplot\left(y = x^2 + 4\,x, x = -10..10, y = -20..20\right);$



> $implicitplot\left(x^2 - 2 \cdot x \cdot y - y^2 = 1, x = -10..10, y = -10..10\right);$



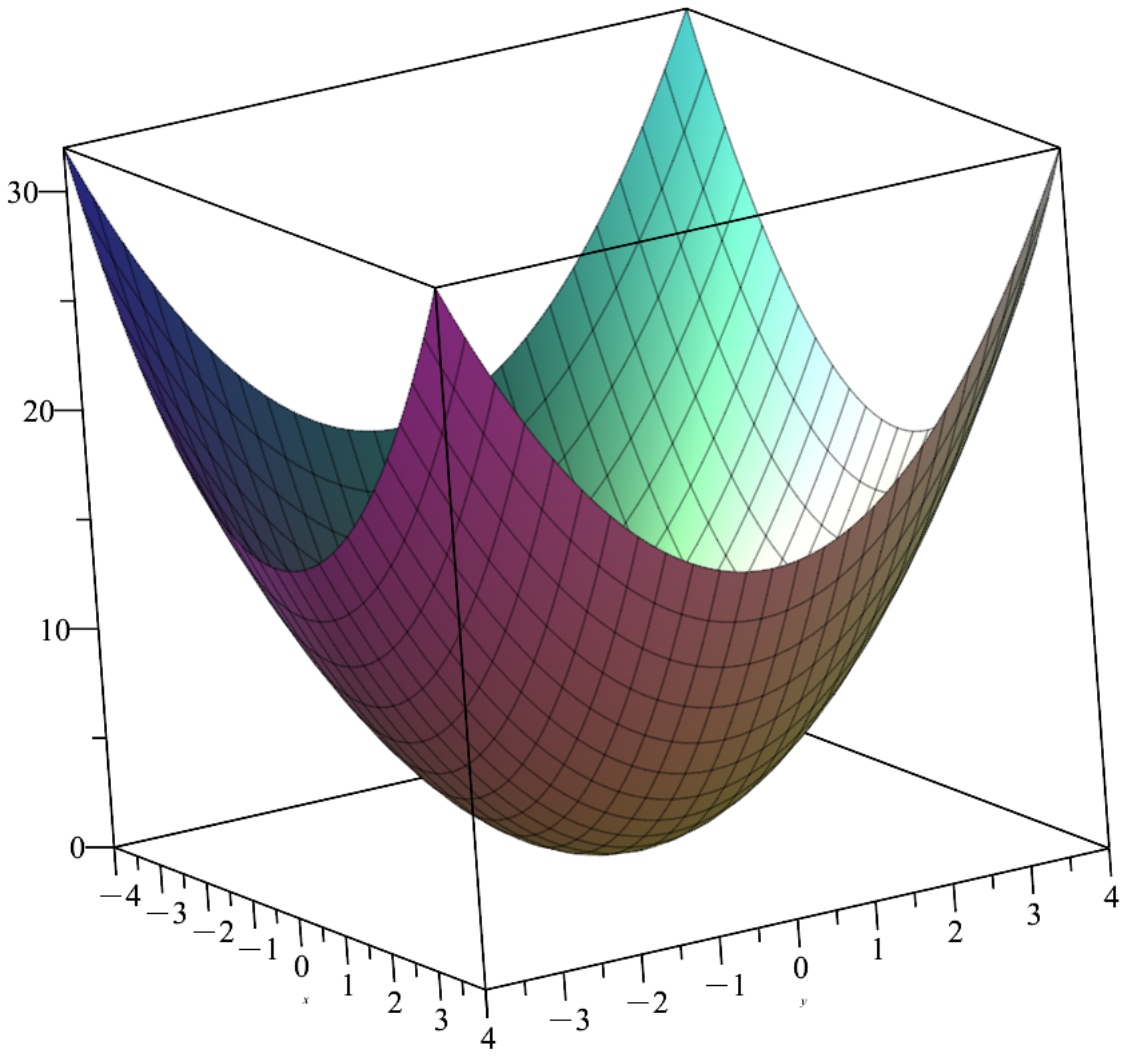
> $implicitplot\left(y^3 + y^2 - 5\,y - x^2 = -4, x = -10..10, y = -10..10\right);$




```
> H := (x, y)→x^2 + y^2;
```

$$H := (x, y) \mapsto y^2 + x^2 \tag{48}$$

```
> plot3d(H(x, y), x = −4 ..4, y = −4 ..4);
```


30
20
10
0
−4
−3
−2
−1
0
1
2
3
4
x
−3
−2
−1
0
1
2
3
4
y

>