

> solve(x^2+p\*x+q=0, x);

$$-\frac{1}{2}p + \frac{1}{2}\sqrt{p^2 - 4q}, -\frac{1}{2}p - \frac{1}{2}\sqrt{p^2 - 4q}$$

> solve(x^3-4\*x-1=0, x);

$$\frac{1}{6}(108 + 12 I\sqrt{687})^{(1/3)} + \frac{8}{(108 + 12 I\sqrt{687})^{(1/3)}}$$

$$-\frac{1}{12}(108 + 12 I\sqrt{687})^{(1/3)} - \frac{4}{(108 + 12 I\sqrt{687})^{(1/3)}}$$

$$+\frac{1}{2}I\sqrt{3}\left(\frac{1}{6}(108 + 12 I\sqrt{687})^{(1/3)} - \frac{8}{(108 + 12 I\sqrt{687})^{(1/3)}}\right)$$

$$-\frac{1}{12}(108 + 12 I\sqrt{687})^{(1/3)} - \frac{4}{(108 + 12 I\sqrt{687})^{(1/3)}}$$

$$-\frac{1}{2}I\sqrt{3}\left(\frac{1}{6}(108 + 12 I\sqrt{687})^{(1/3)} - \frac{8}{(108 + 12 I\sqrt{687})^{(1/3)}}\right)$$

> evalf(%);

$$2.114907542 - .1 10^{-9} I, -1.860805854 + .1 10^{-9} I,$$

$$-.2541016885 + .1 10^{-9} I$$

> q:=x^4-x-1;

$$q := x^4 - x - 1$$

> s:=solve(q=0, x);

$$s := \text{RootOf}(\_Z^4 - \_Z - 1, \text{index} = 1),$$

$$\text{RootOf}(\_Z^4 - \_Z - 1, \text{index} = 2), \text{RootOf}(\_Z^4 - \_Z - 1, \text{index} = 3),$$

```
RootOf(_Z^4 - _Z - 1, index=4)
```

```
> w:=RootOf(_Z^2-_Z-2);
```

```
          w := RootOf(_Z^2 - _Z - 2)
```

```
> allvalues(%);
```

```
          2, -1
```

```
> RootOf(_Z^2-_Z-2, index=1);
```

```
>
```

```
          RootOf(_Z^2 - _Z - 2, index=1)
```

```
> allvalues(%);
```

```
          2
```

```
>
```

```
>
```

```
> s[1];
```

```
          RootOf(_Z^4 - _Z - 1, index=1)
```

```
> allvalues(%);
```

$$\frac{1}{12}\sqrt{6}\sqrt{\frac{(108 + 12\sqrt{849})^{(2/3)} - 48}{(108 + 12\sqrt{849})^{(1/3)}}} + \frac{1}{12}\sqrt{6}\sqrt{\left(\left(-\sqrt{\frac{(108 + 12\sqrt{849})^{(2/3)} - 48}{(108 + 12\sqrt{849})^{(1/3)}}}\right)(108 + 12\sqrt{849})^{(2/3)} + 48\sqrt{\frac{(108 + 12\sqrt{849})^{(2/3)} - 48}{(108 + 12\sqrt{849})^{(1/3)}}}\right)}$$

$$\left( + 12 \sqrt{6} (108 + 12 \sqrt{849})^{(1/3)} \right) / \left( (108 + 12 \sqrt{849})^{(1/3)} \right) \sqrt{\frac{(108 + 12 \sqrt{849})^{(2/3)} - 48}{(108 + 12 \sqrt{849})^{(1/3)}}}$$

>

> r:=x^5-3\*x+1;

$$r := x^5 - 3x + 1$$

> solve(r=0,x);

RootOf(\_Z<sup>5</sup> - 3\_Z + 1, index = 1),

RootOf(\_Z<sup>5</sup> - 3\_Z + 1, index = 2),

RootOf(\_Z<sup>5</sup> - 3\_Z + 1, index = 3),

RootOf(\_Z<sup>5</sup> - 3\_Z + 1, index = 4),

RootOf(\_Z<sup>5</sup> - 3\_Z + 1, index = 5)

> %[1];

RootOf(\_Z<sup>5</sup> - 3\_Z + 1, index = 1)

> allvalues(%);

RootOf(\_Z<sup>5</sup> - 3\_Z + 1, index = 1)

> fsolve(r=0,x);

-1.388791984, .3347341419, 1.214648043

> fsolve(r=0,x,complex);

-1.388791984, -.08029510012 - 1.328355110 I,

-.08029510012 + 1.328355110 I, .3347341419, 1.214648043

> fsolve(r=0,x,0..3);

.3347341419, 1.214648043

> solve(sin(x)=x, x);

0

> solve(sin(x)=3\*cos(x), x);

arctan(3)

> solve(tan(x)=x, x);

RootOf(-tan(\_Z)+\_Z)

> x0:=fsolve(tan(x)=x, x);

x0:=0.

> x1:=fsolve(tan(x)=x, x, avoid={x=x0});

x1 := -4.493409458

> fsolve(tan(x)=x, x, avoid={x=x0, x=x1});

4.493409458

> fsolve(tan(x)=x, x, 1..8);

4.493409458

> gleichung1:=x+y=3;

gleichung1 := x + y = 3

> gleichung2:=x+c\*y=4;

gleichung2 := x + c y = 4

> solve({gleichung1, gleichung2}, {x, y});

$$\left\{ y = \frac{1}{-1+c}, x = \frac{-4+3c}{-1+c} \right\}$$

> gleichung3:=subs(c=1, gleichung2);

gleichung3 := x + y = 4

> solve({gleichung1, gleichung3}, {x, y});

> solve(x\*x<=1, {x});

{x ≤ 1, -1 ≤ x}

```
> solve(a*x<1, {x});
```

$$\left\{ \text{signum}(a) x < \frac{\text{signum}(a)}{a} \right\}$$

```
> assume(a>0);
```

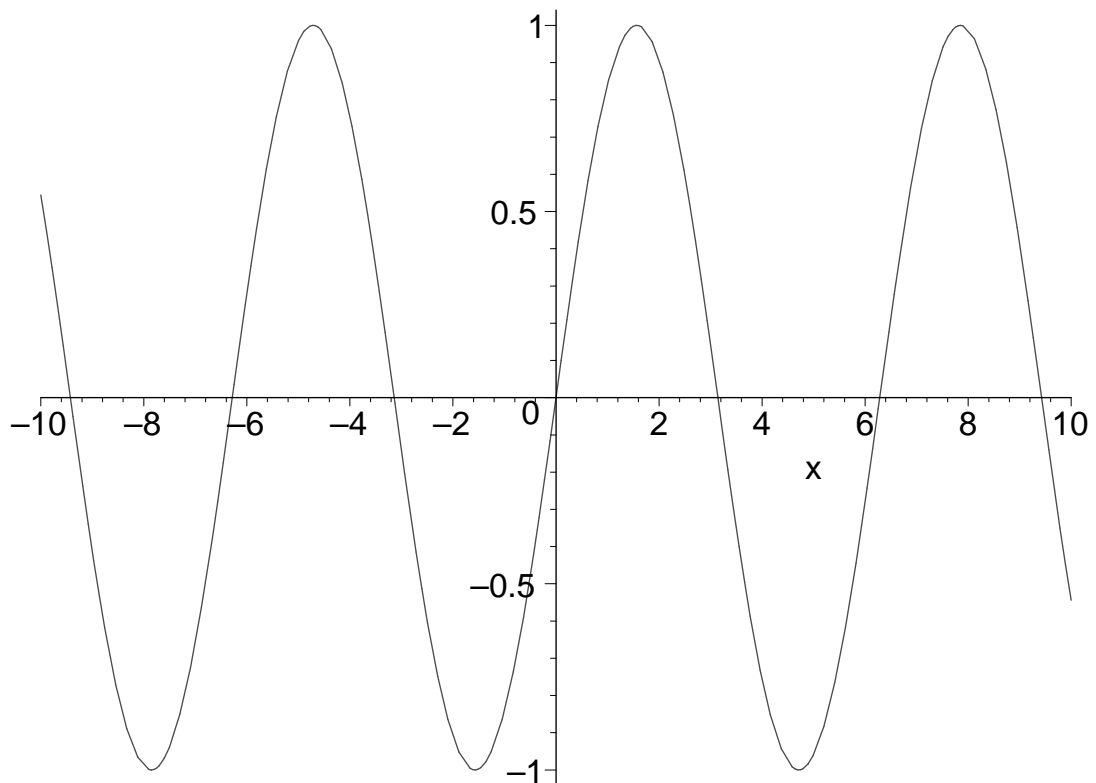
```
> signum(a);
```

1

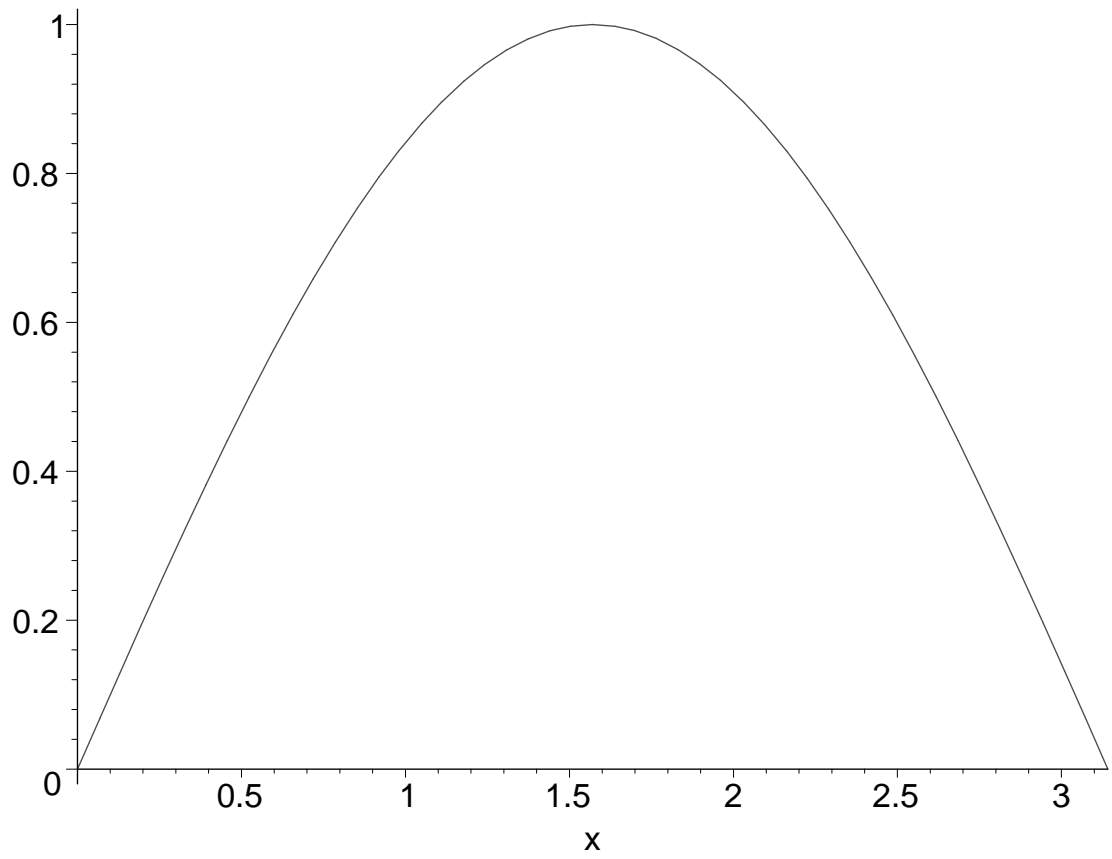
```
> solve(a*x<1, {x});
```

$$\left\{ x < \frac{1}{a} \right\}$$

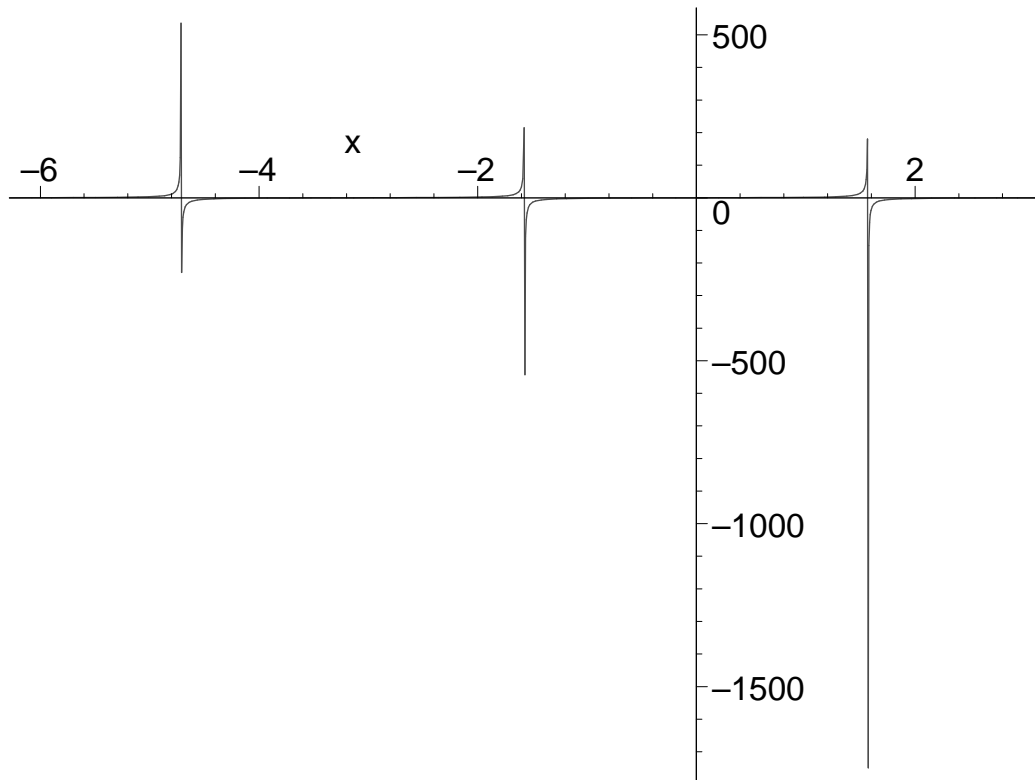
```
> plot(sin(x), x);
```



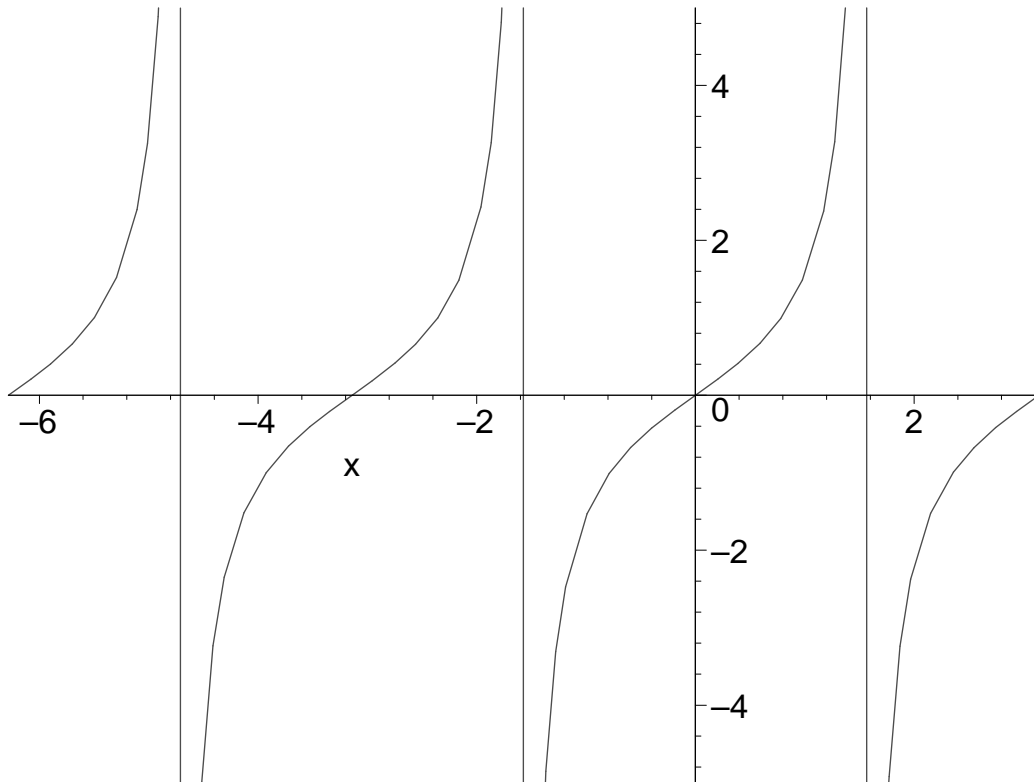
```
> plot(sin(x), x=0..Pi);
```



```
> plot(tan(x), x=-2*Pi..Pi);
```

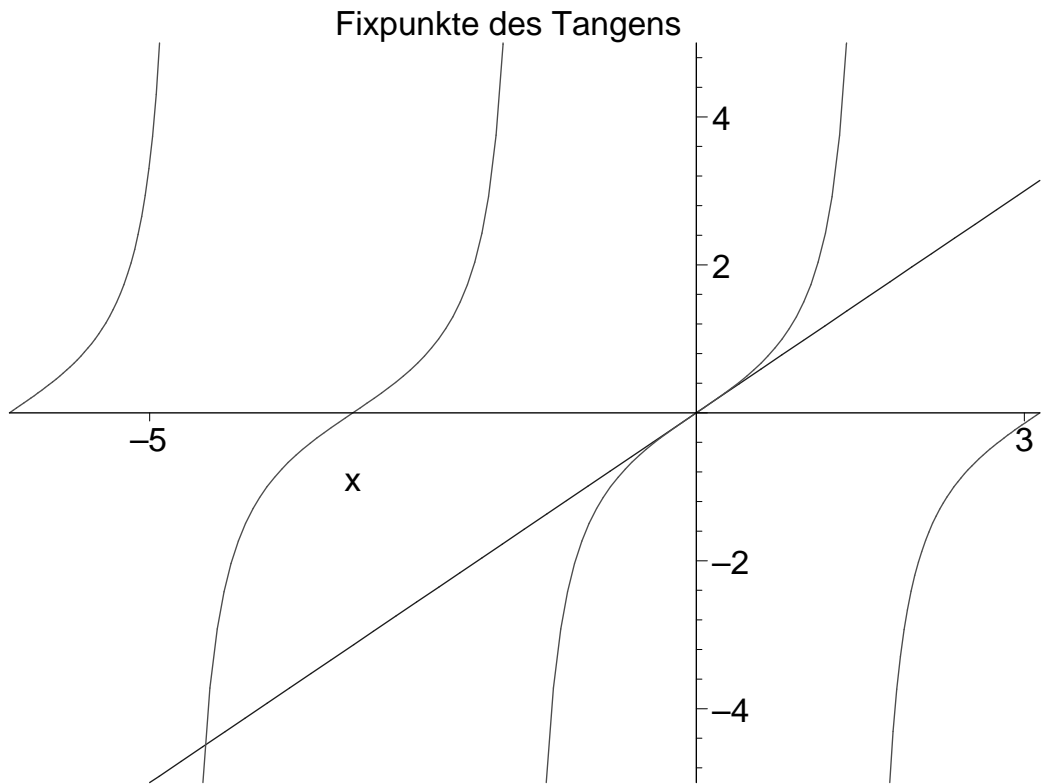


```
> plot(tan(x), x=-2*Pi..Pi, -5..5);
```

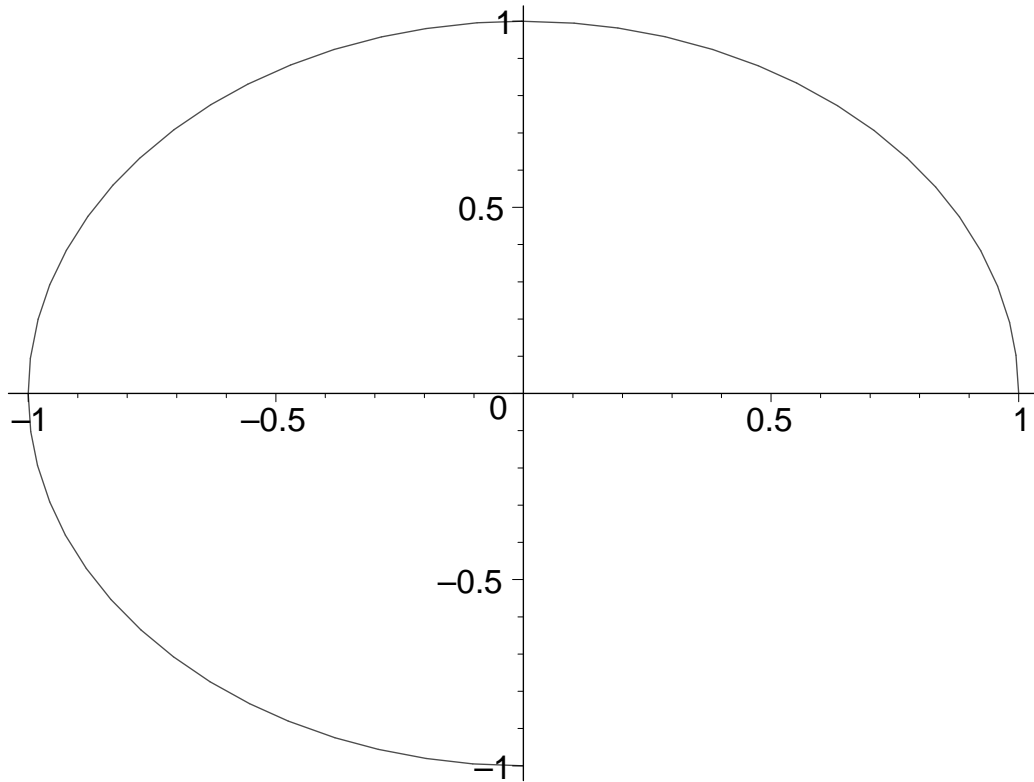


```
> plot([tan(x),x],x=-2*Pi..Pi,-5..5,discont=true,color=[red,blue],title='Fixpunkte des Tangens',xtickmarks=[-5,3]);
```

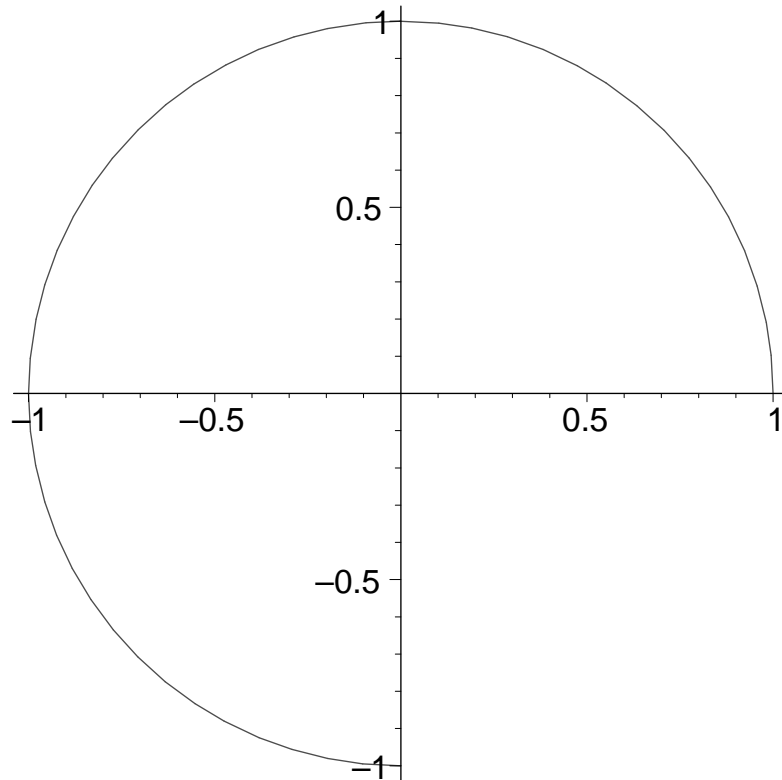




```
> plot([cos(t),sin(t),t=0..3*Pi/2]);
```



```
> plot([cos(t),sin(t),t=0..3*Pi/2],scaling=constrained);
```



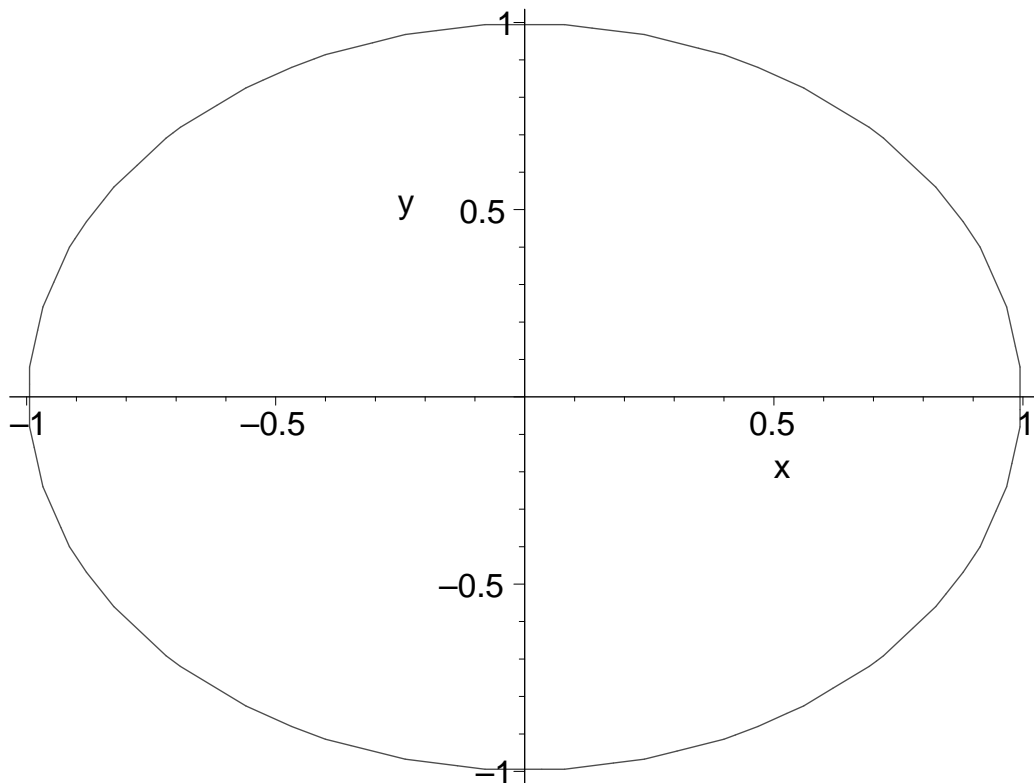
```
> with(plots);
```

Warning, the name `changecoords` has been redefined

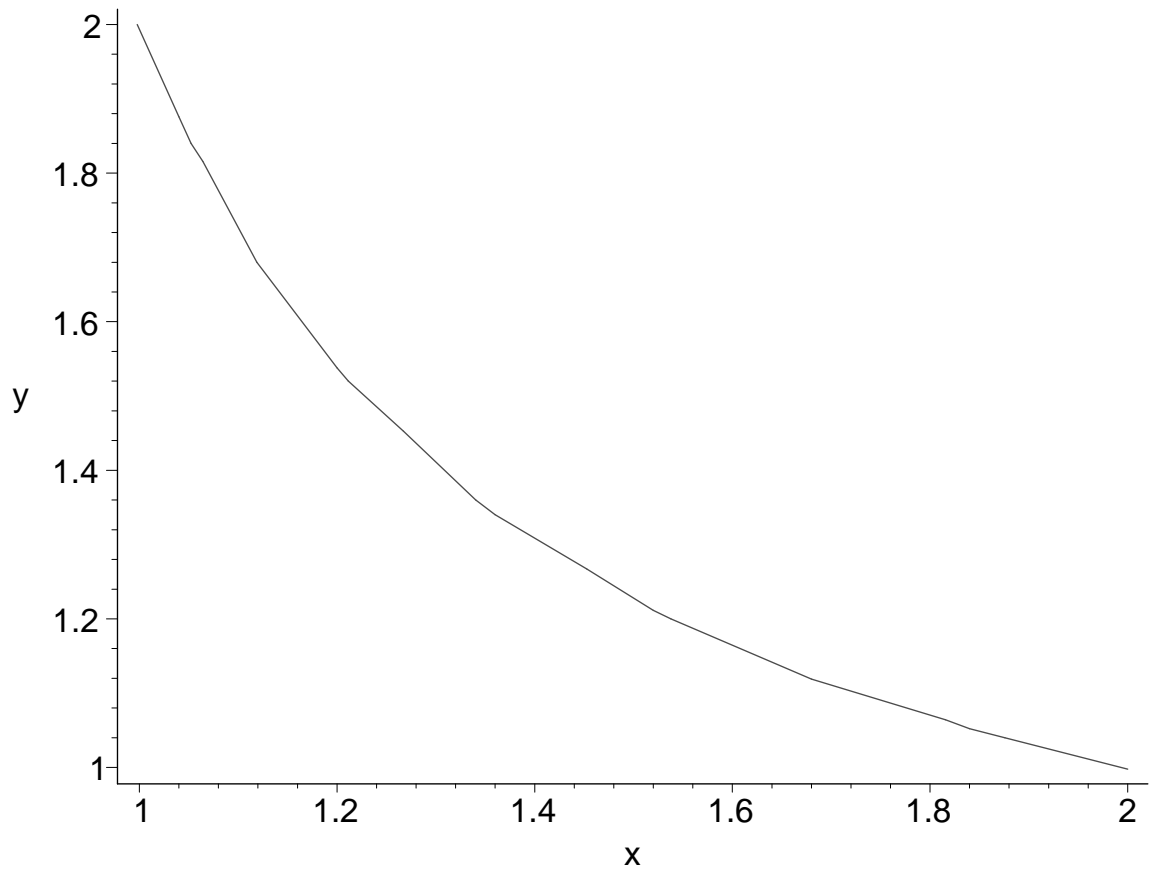
*[animate, animate3d, animatecurve, arrow, changecoords, complexplot, complexplot3d, conformal, conformal3d, contourplot, contourplot3d, coordplot, coordplot3d, cylinderplot, densityplot, display, display3d, fieldplot, fieldplot3d, gradplot, gradplot3d, implicitplot, implicitplot3d, inequal, listcontplot, listcontplot3d, listdensityplot, listplot, listplot3d, loglogplot, logplot, matrixplot, odeplot, pareto, pointplot, pointplot3d, polarplot, polygonplot, polygonplot3d, polyhedra\_supported, polyhedraplot, replot,*

*rootlocus, semilogplot, setoptions, setoptions3d, spacecurve, sparsematrixplot, sphereplot, surfdata, textplot, textplot3d, tubeplot]*

```
> implicitplot(x^2+y^2=1,x=-2..2,y=-2..2);
```



```
> implicitplot(x^y+y^x=3,x=-2..2,y=-2..2);
```



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