```
> Joe^2;
```

$$Joe^2 \quad (1)$$

```
> int(sin(x)*cos(x),x=5 ..4*Pi);
```

$$\int_5^{4\cdot Pi} \sin(x)\cos(x)\,dx$$

$$\frac{1}{2}\cos(5)^2 - \frac{1}{2} \quad (2)$$

```
> int(sin(x)*cos(x),x=5 ..4*Pi);
```

$$\frac{1}{2}\cos(5)^2 - \frac{1}{2} \quad (3)$$

```
> 2 + 2
```

$$4 \quad (4)$$

```
> Joe := 3;
```

$$Joe := 3 \quad (5)$$

```
> Joe^2;
```

$$9 \quad (6)$$

```
> x^2
```

$$x^2 \quad (7)$$

```
> (x + 2)^5
```

$$(x+2)^5 \quad (8)$$

this is just words, don't evaluate. $\frac{d}{dx}\sin(x) = \cos(x)$

```
> d/dx sin(x)
```

$$\cos(x) \quad (9)$$

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

$$\cos(x) \quad (10)$$

```
> sin(x)·exp(cos(x));
```

$$\sin(x)\, e^{\cos(x)} \quad (11)$$

```
> f := sin(x)·exp(cos(x));
```

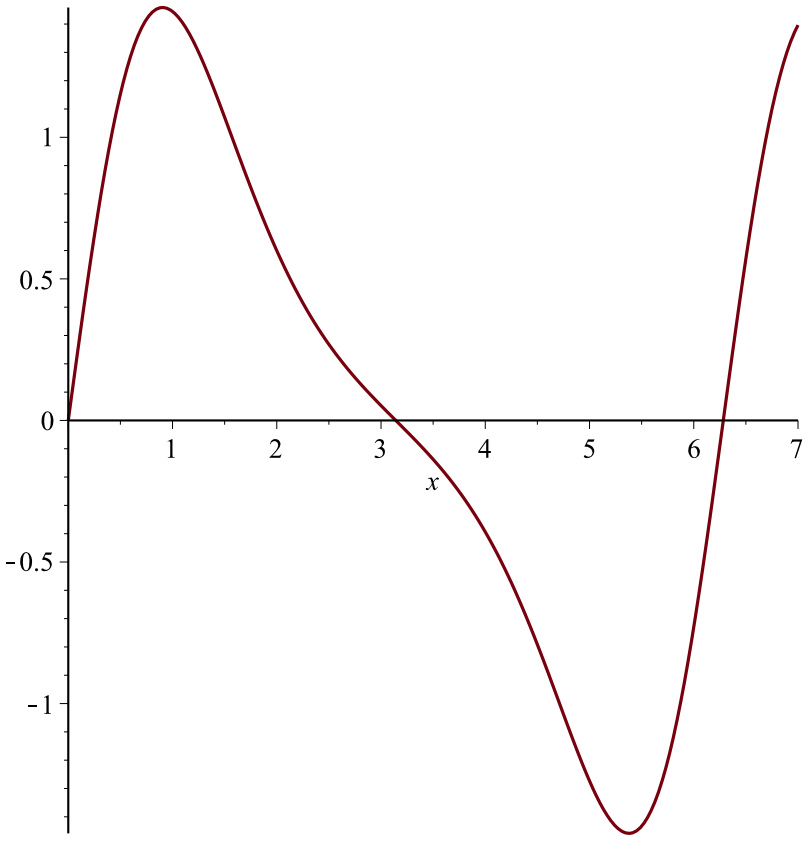
$$f := \sin(x)\, e^{\cos(x)} \quad (12)$$

Not a function!!!

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

$$\sin(x)(0)\, e^{\cos(x)}(0) \quad (13)$$

```
> plot(f, x = 0 ..7);
```




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

$$g := x \to \sin(x)\, e^{\cos(x)} \quad (14)$$

```
> g(0);
```

$$0 \quad (15)$$

```
> g(.7·Pi)
```

$$\sin(0.7\,\pi)\, e^{\cos(0.7\,\pi)} \quad (16)$$

```
> evalf(%);
```

$$0.4494545203 \quad (17)$$

```
> g(Pi/6);
```

$$\frac{1}{2}\, e^{\frac{1}{2}\sqrt{3}} \quad (18)$$

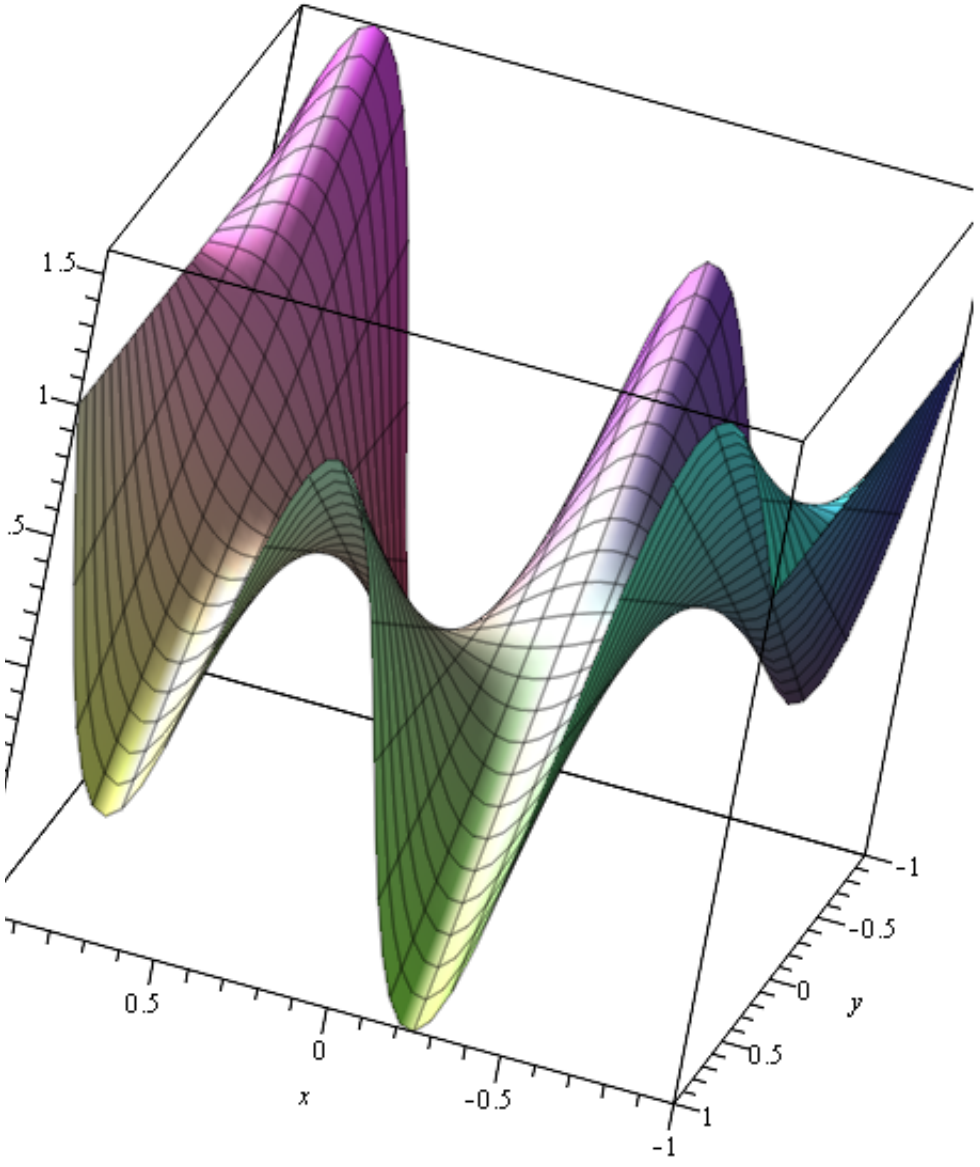
```
> Pi/3
```

$$\frac{1}{3}\,\pi \quad (19)$$

```
> evalf(%^2)
```

1.096622711 **(20)**

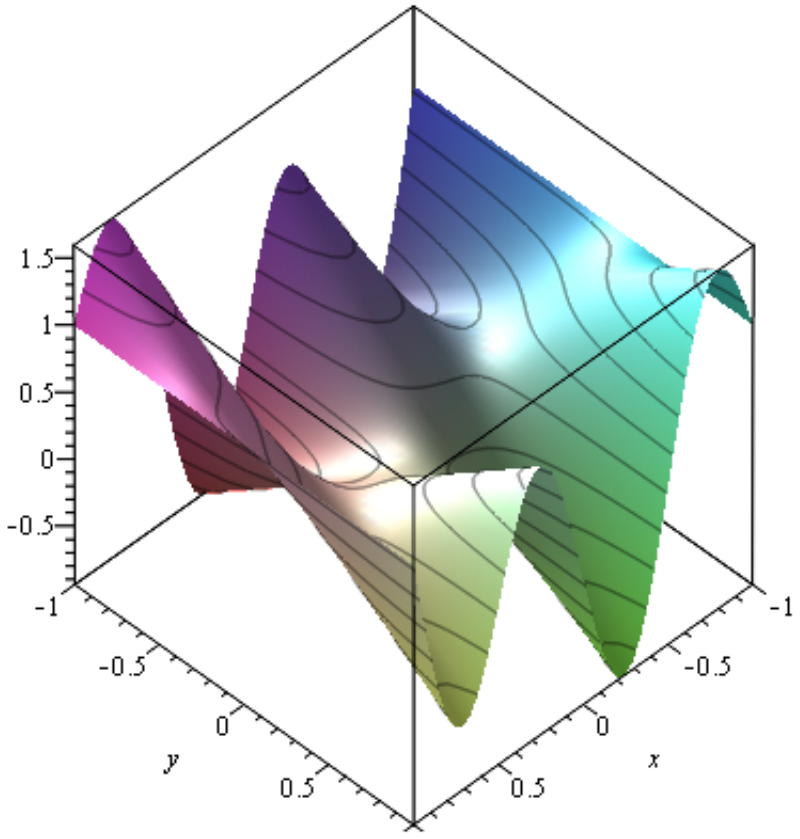
```
> ?plot3d
> plot3d(x^2 + y·sin(2·Pi·x), x = -1..1, y = -1..1);
```




```
> myplot := plot3d(x^2 + y·sin(2·Pi·x), x = -1..1, y = -1..1, style = patchcontour);
```

myplot := PLOT3D(...) **(21)**

```
> myplot;
```




```
>
>
>
> data := [[0, 1], [2, 5], [3, -1], [4, 2]];
```

$$data := [[0, 1], [2, 5], [3, -1], [4, 2]] \quad (22)$$

```
> junk := [apple, pear, Pi/6, int(sin(x), x), [1, 2, 3]];
```

$$junk := \left[apple, pear, \frac{1}{6}\pi, -\cos(x), [1, 2, 3]\right] \quad (23)$$

```
> junk[3];
```

$$\frac{1}{6}\pi \quad (24)$$

```
> junk[2..5];
```

$$\left[pear, \frac{1}{6}\pi, -\cos(x), [1, 2, 3]\right] \quad (25)$$

```
> junk[5];
```

$$[1, 2, 3] \quad (26)$$

```
> junk[5][2];
```

$$2 \tag{27}$$

```
> stuff := junk[2][2];
```

$$stuff := pear_2 \tag{28}$$

```
> pear := [skin, juice, seeds];
```

$$pear := [skin, juice, seeds] \tag{29}$$

```
> junk[2][2];
```

$$juice \tag{30}$$

```
> Pi[2];
```

$$\pi_2 \tag{31}$$

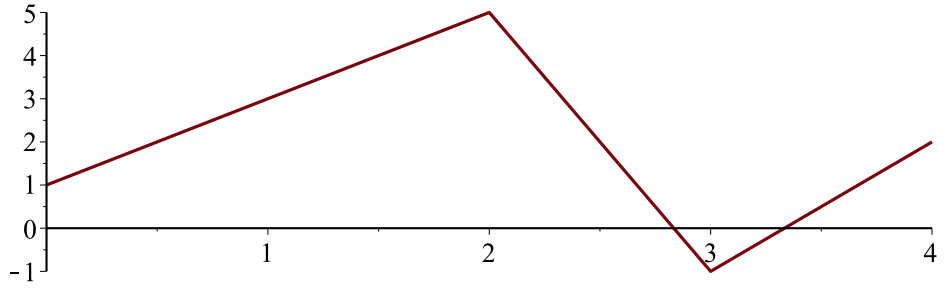
```
> [pear[1], pear[3]];
```

$$[skin, seeds] \tag{32}$$

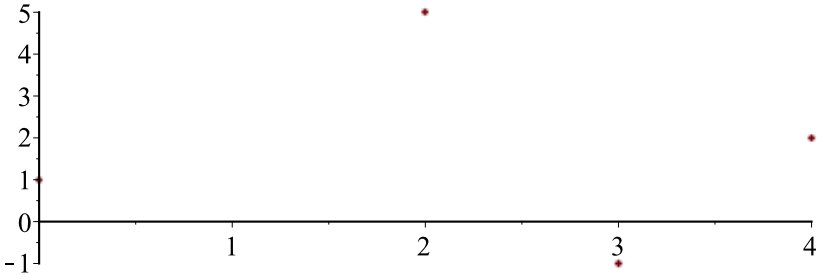
```
> data;
```

$$[[0, 1], [2, 5], [3, -1], [4, 2]] \tag{33}$$

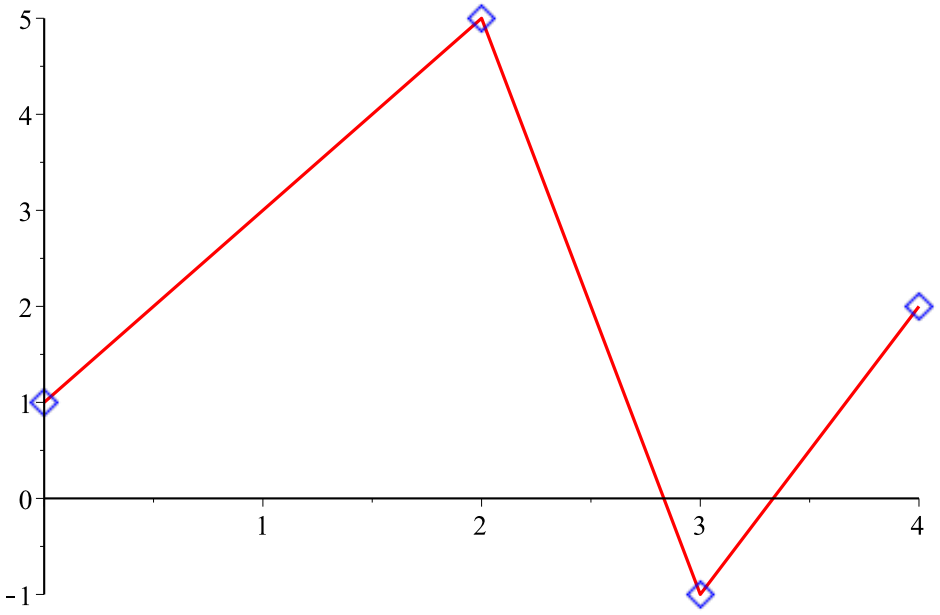
```
> plot(data);
```



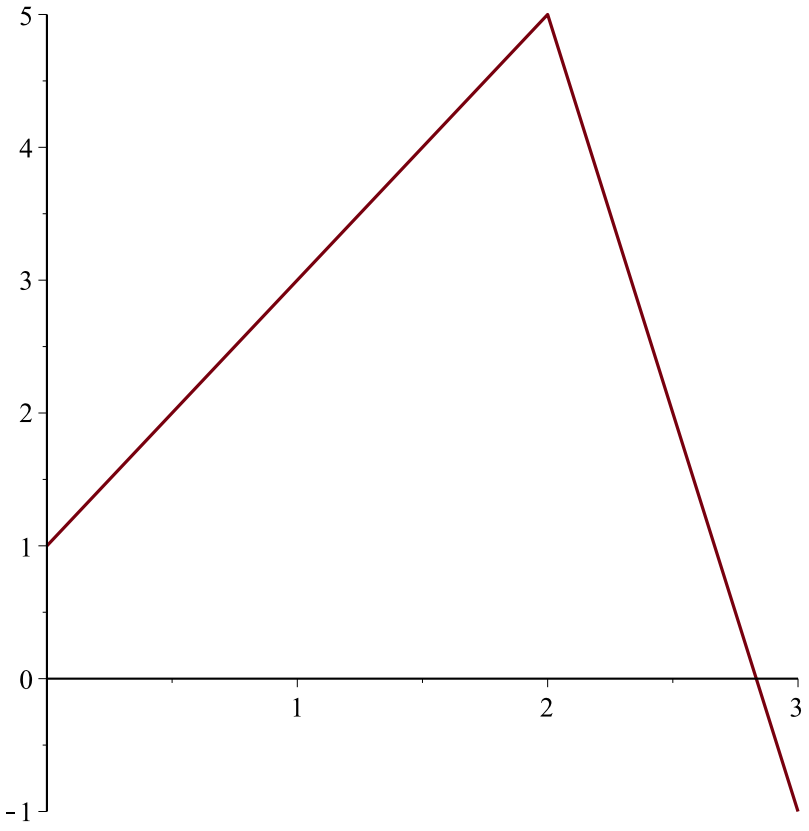

```
> plot(data, style=point);
```




```
> plot([data, data], style=[line, point], color=[red, blue], symbolsize=25);
```




```
> plot(data[1..3]);
```




```
> data[1..3];
```

$$[[0, 1], [2, 5], [3, -1]] \quad (34)$$

```
> q := x→a·x^2 + b·x + c
```

$$q := x \to a\,x^2 + b\,x + c \quad (35)$$

```
> q(0);
```

$$c \quad (36)$$

```
> q(2);
```

$$4\,a + 2\,b + c \quad (37)$$

```
> q(3);
```

$$9\,a + 3\,b + c \quad (38)$$

```
> solve(q(0) = 1, q(2) = 5, q(3 ) = -1);
```

Error, invalid input: too many and/or wrong type of arguments passed to solve; first unused argument is 4*a+2*b+c = 5

```
> solve({q(0) = 1, q(2) = 5, q(3 ) = -1});
```

$$\left\{a = -\frac{8}{3}, b = \frac{22}{3}, c = 1\right\} \quad (39)$$

```
> solve(2·x = 3);
```

(40)

$$\frac{3}{2}$$

(40)