```
> 3+2;
```

$$5 \quad (1)$$

```
> 3 + 2;
```

$$5 \quad (2)$$

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

$$\frac{1}{2} \quad (3)$$

```
> 12341235234661346·123512346257782468;
```

$$15242949195522374369372769160819 28 \quad (4)$$

```
> cos(99· Pi/6);
```

$$0 \quad (5)$$

```
> 18/6;
```

$$3 \quad (6)$$

```
> 19/6;
```

$$\frac{19}{6} \quad (7)$$

```
> evalf(191/6);
```

$$31.83333333 \quad (8)$$

```
> Digits;
```

$$10 \quad (9)$$

```
> evalf(Pi, 218);
```

3.14159265358979323846264338327950288419716939937510582097494459230781640628621\ (10)
0899862803482534211706798214808651328230664709384460955058223172535940812 8\
4811174502841027019385211055596446229489549303819644288109756659334

```
> evalf(Pi, 21800000);
```

Warning, computation interrupted

```
>
> x^2*sin(27*x^2+ln(x))/cos(x);
```

$$\frac{x^2 \sin(27 x^2 + \ln(x))}{\cos(x)} \quad (11)$$

```
> diff(x^2*sin(27*x^2+ln(x))/cos(x),x);
```

$$\frac{2 x \sin(27 x^2 + \ln(x))}{\cos(x)} + \frac{x^2 \cos(27 x^2 + \ln(x)) \left(54 x + \frac{1}{x}\right)}{\cos(x)} + \frac{x^2 \sin(27 x^2 + \ln(x)) \sin(x)}{\cos(x)^2} \quad (12)$$

```
> \%;
```

$$\frac{2x\sin(27x^2+\ln(x))}{\cos(x)}+\frac{x^2\cos(27x^2+\ln(x))\left(54x+\frac{1}{x}\right)}{\cos(x)}+\frac{x^2\sin(27x^2+\ln(x))\sin(x)}{\cos(x)^2} \tag{13}$$

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

$$\frac{2\sin(27x^2+\ln(x))}{\cos(x)}+\frac{4x\cos(27x^2+\ln(x))\left(54x+\frac{1}{x}\right)}{\cos(x)}+\frac{4x\sin(27x^2+\ln(x))\sin(x)}{\cos(x)^2}-\frac{x^2\sin(27x^2+\ln(x))\left(54x+\frac{1}{x}\right)^2}{\cos(x)}+\frac{x^2\cos(27x^2+\ln(x))\left(54-\frac{1}{x^2}\right)}{\cos(x)}+\frac{2x^2\cos(27x^2+\ln(x))\left(54x+\frac{1}{x}\right)\sin(x)}{\cos(x)^2}+\frac{2x^2\sin(27x^2+\ln(x))\sin(x)^2}{\cos(x)^3}+\frac{x^2\sin(27x^2+\ln(x))}{\cos(x)} \tag{14}$$

```
> factor(%);
```

$$-\frac{1}{\cos(x)^3}(-\sin(27x^2+\ln(x))\cos(x)^2-270\cos(27x^2+\ln(x))\cos(x)^2x^2-3\cos(27x^2+\ln(x))\cos(x)^2-4x\sin(27x^2+\ln(x))\sin(x)\cos(x)+2916x^4\sin(27x^2+\ln(x))\cos(x)^2+107\sin(27x^2+\ln(x))\cos(x)^2x^2-108x^3\cos(27x^2+\ln(x))\sin(x)\cos(x)-2x\cos(27x^2+\ln(x))\sin(x)\cos(x)-2x^2\sin(27x^2+\ln(x))\sin(x)^2) \tag{15}$$

```
> %
```

Warning, inserted missing semicolon at end of statement

$$31.83333333 \tag{16}$$

```
> Pi;
```

$$\pi \tag{17}$$

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

$$3.141592654 \tag{18}$$

```
> evalf(E);
```

$$E \tag{19}$$

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

$$\mathrm{e} \tag{20}$$

```
> evalf(e);
```

$$e \tag{21}$$

```
> e=exp(1);
```

$$e = \mathrm{e} \tag{22}$$

```
> ln(e);
```

$$\ln(e) \tag{23}$$

```
> e:=exp(1);
```

$$e := e \quad (24)$$

```
> ln(e);
```

$$1 \quad (25)$$

```
> evalf(e^27);
```

$$5.320482382\ 10^{11} \quad (26)$$

```
> unassign('e');
> evalf(e^27);
```

$$e^{27} \quad (27)$$

```
> e:="6th letter";
```

$$e := \text{"6th letter"} \quad (28)$$

```
> e^2;
```

Error, invalid terms in product: 6th letter

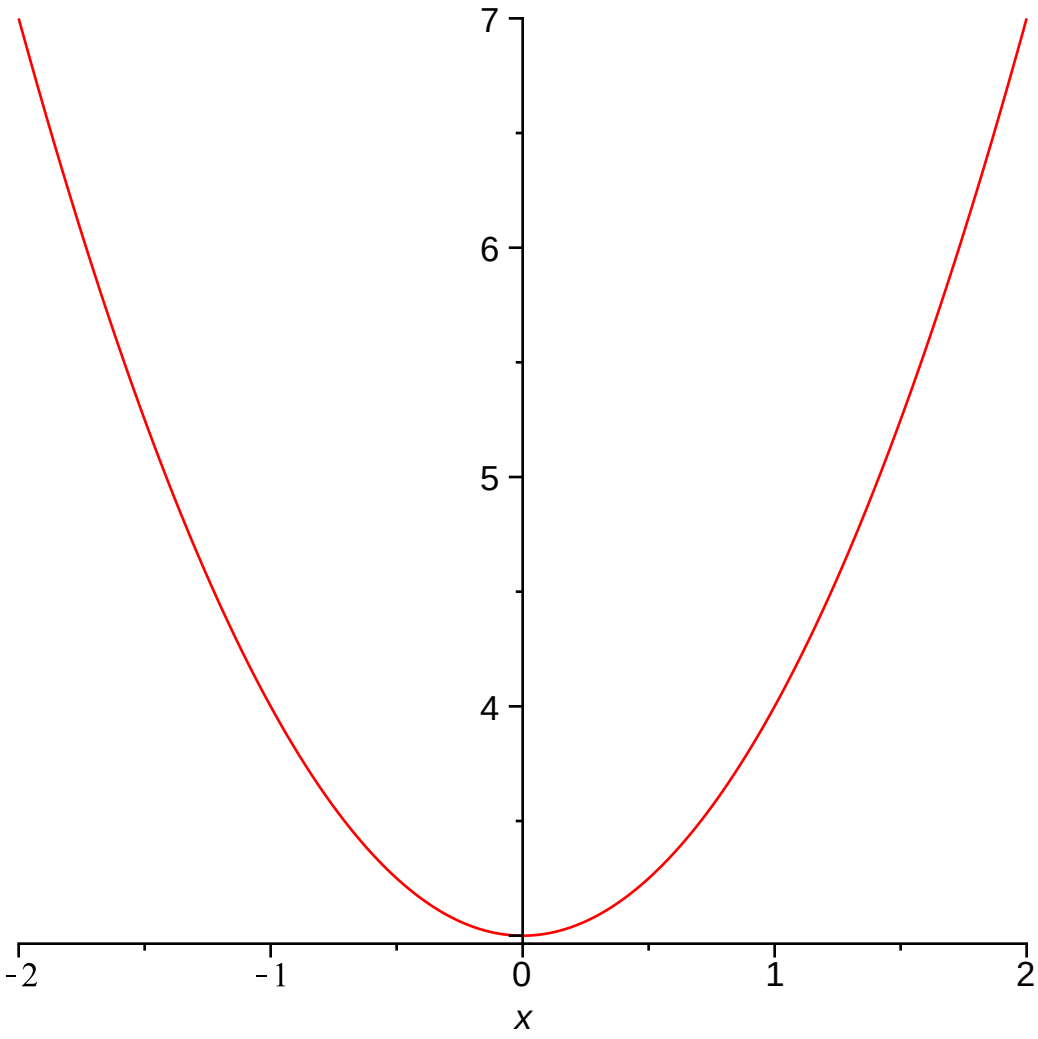
```
> e:='e';
```

$$e := e \quad (29)$$

```
> e^2;
```

$$e^2 \quad (30)$$

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




```
> f:=x^2+3;
```

(31)

$$f := x^2 + 3 \quad (31)$$

```
> f(2);
```

$$x(2)^2 + 3 \quad (32)$$

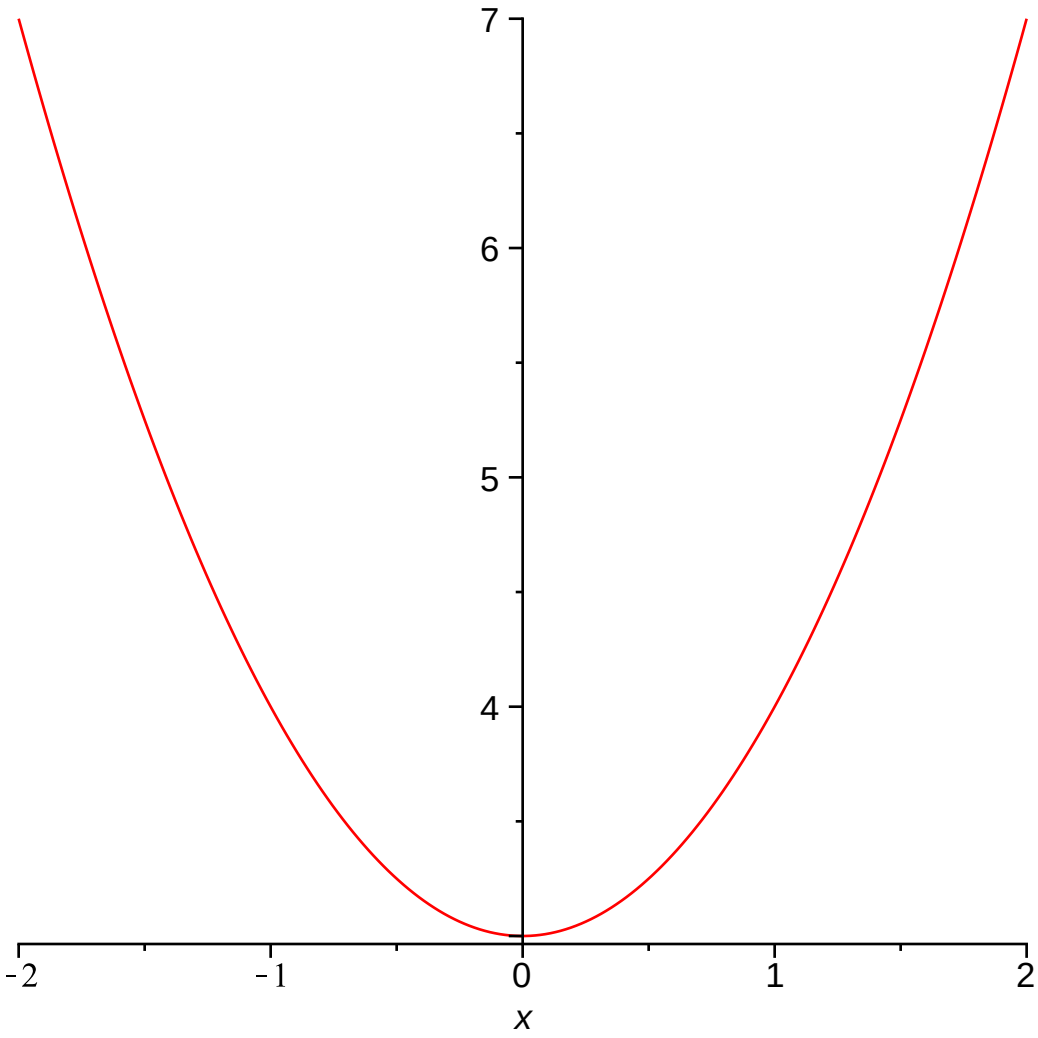
```
> g:=x -> x^2+3;
```

$$g := x \to x^2 + 3 \quad (33)$$

```
> g(2);
```

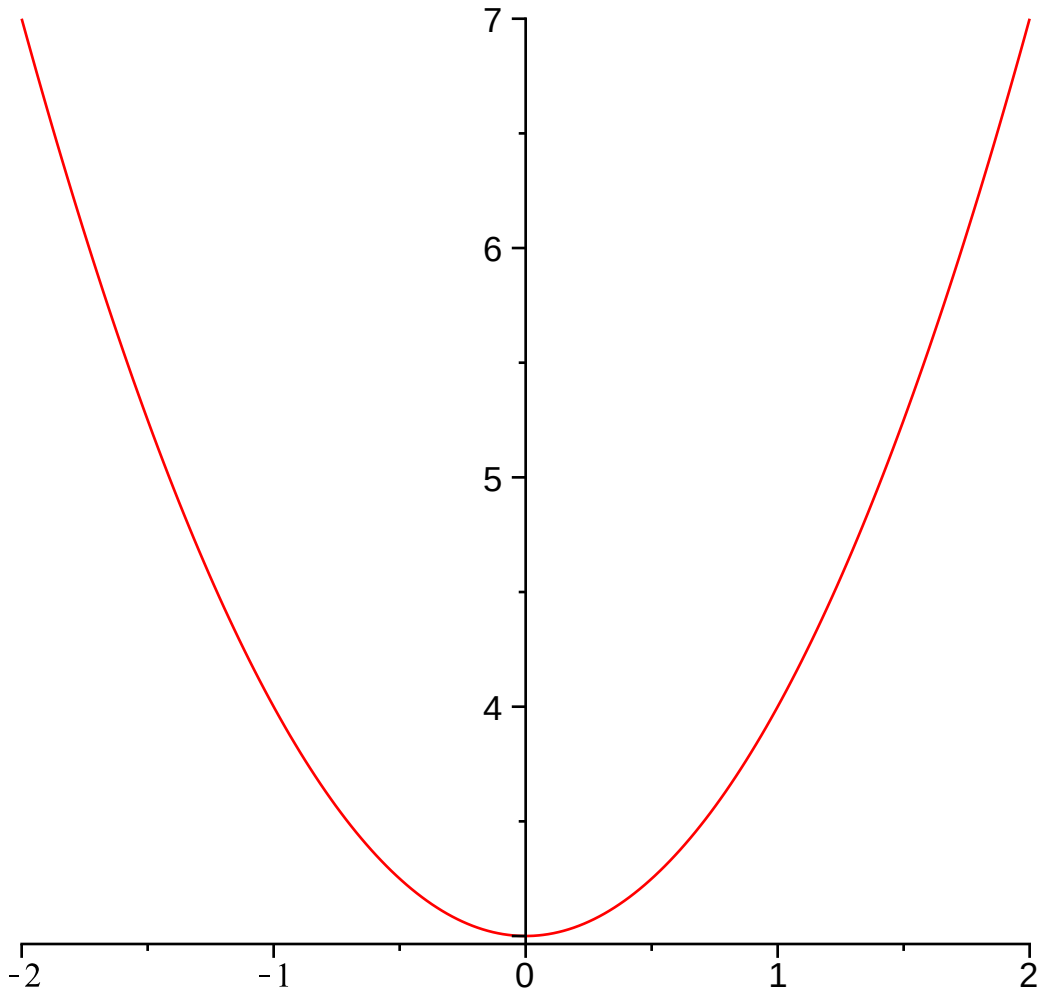
$$7 \quad (34)$$

```
> plot(g(x),x=-2..2);
```




```
> plot(g,-2..2)
```

Warning, inserted missing semicolon at end of statement




```
> solve(g(x)=19);
```

$$4, -4 \tag{35}$$

```
> solve(g(x*y)=19);
```

$$\left\{x = \frac{4}{y}, y = y\right\}, \left\{x = -\frac{4}{y}, y = y\right\} \tag{36}$$

```
> 123456789;
```

$$123456789 \tag{37}$$

```
> factors(123456789);
```

$$[123456789, [\,]] \tag{38}$$

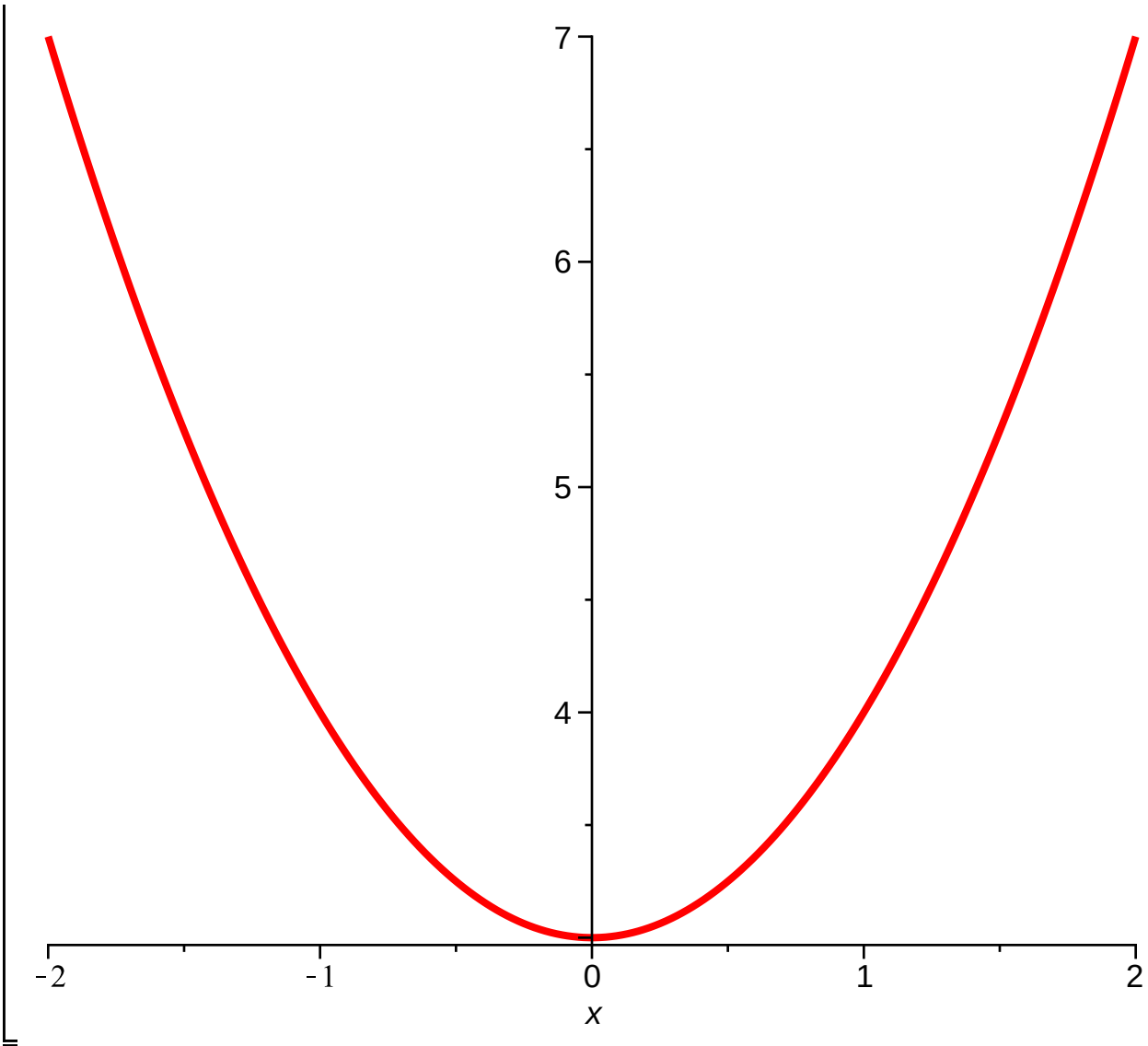
```
> factor(123456789);
```

$$123456789 \tag{39}$$

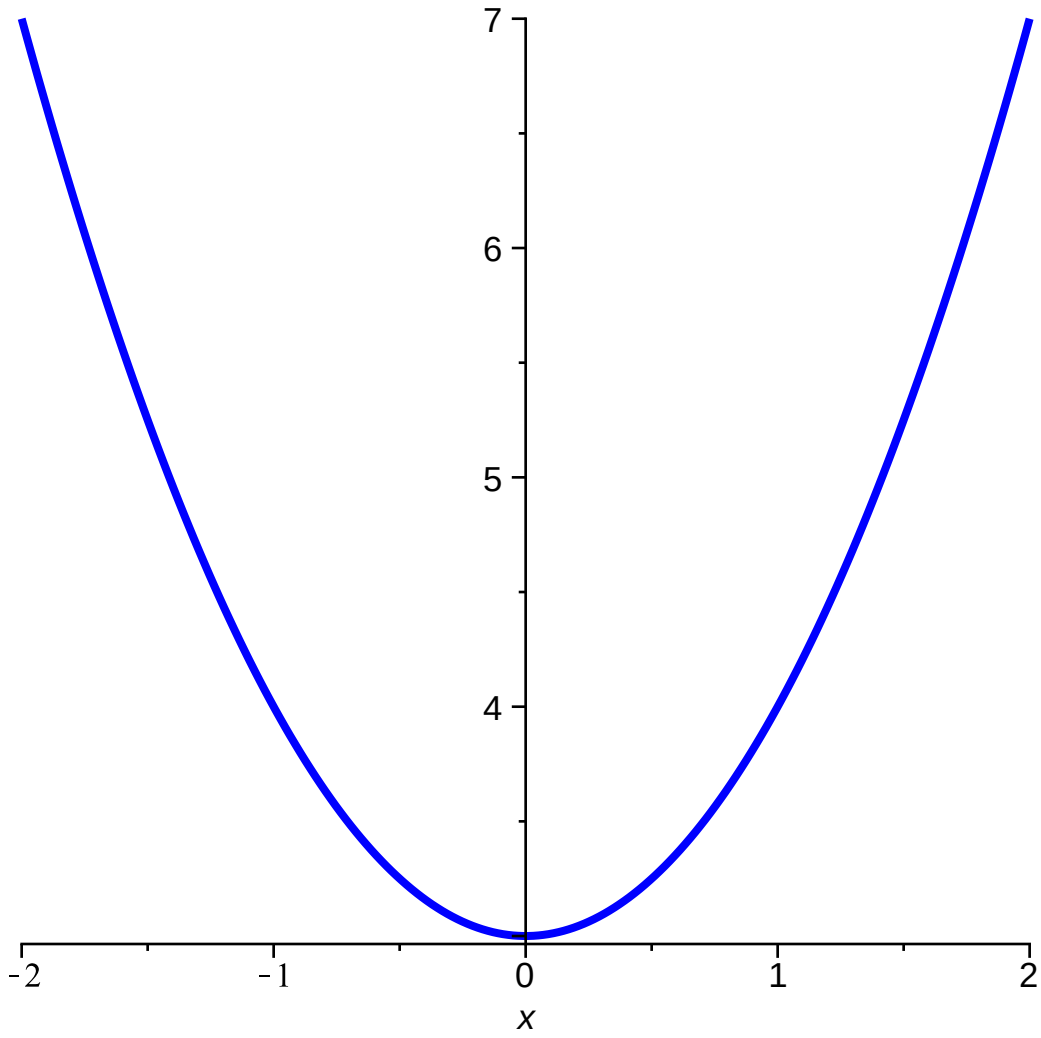
```
> ?factor
> ifactor(123456789);
```

$$(3)^2\,(3803)\,(3607) \tag{40}$$

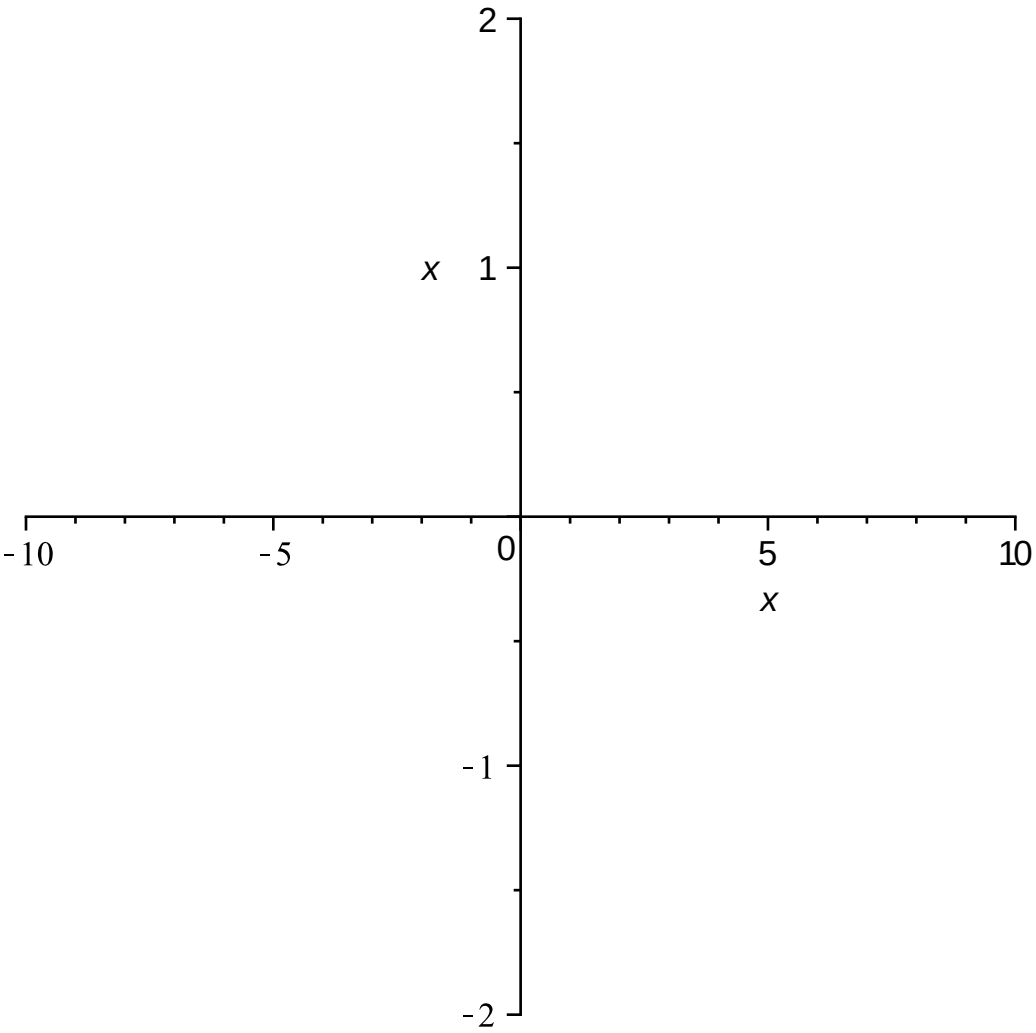
```
> plot(g(x),x=-2..2);
```



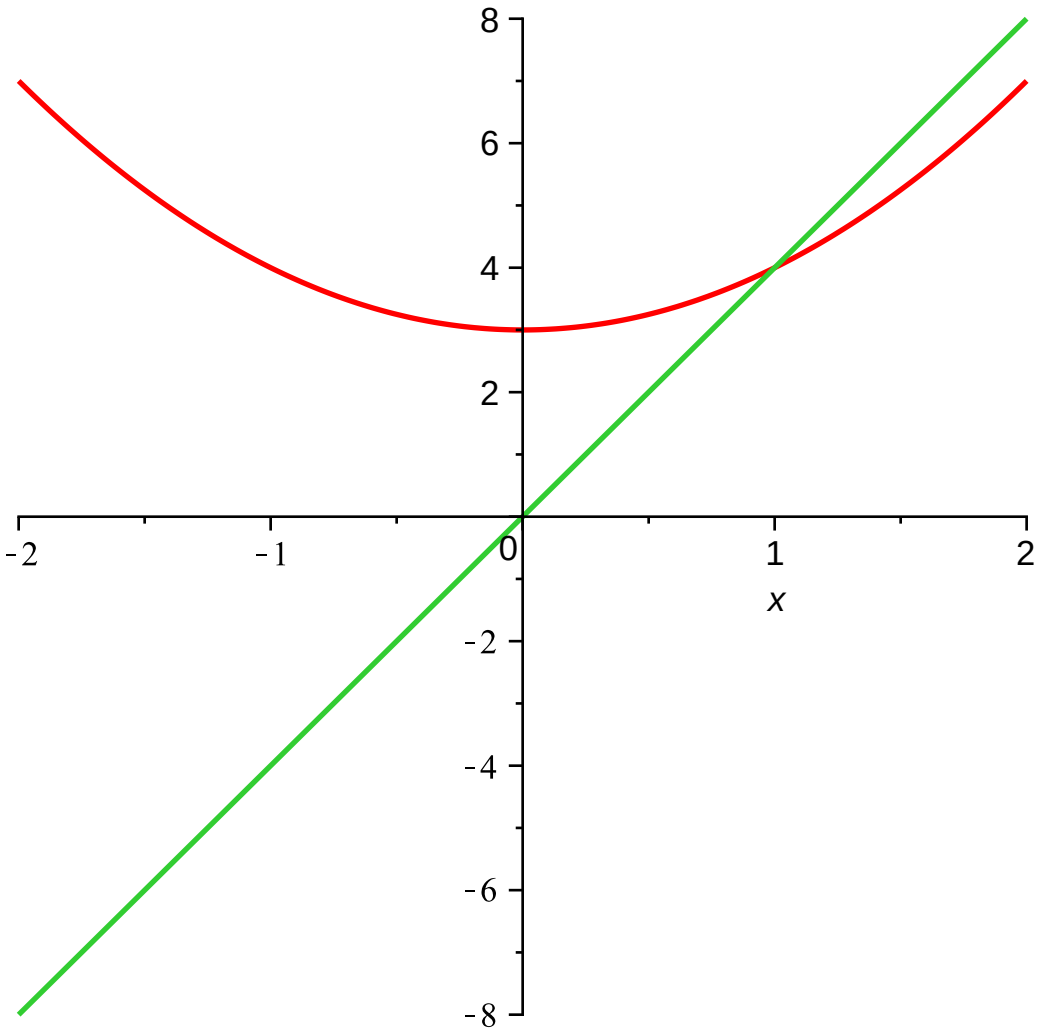

```
> plot(g(x),x=-2..2,color=blue,thickness=3);
```



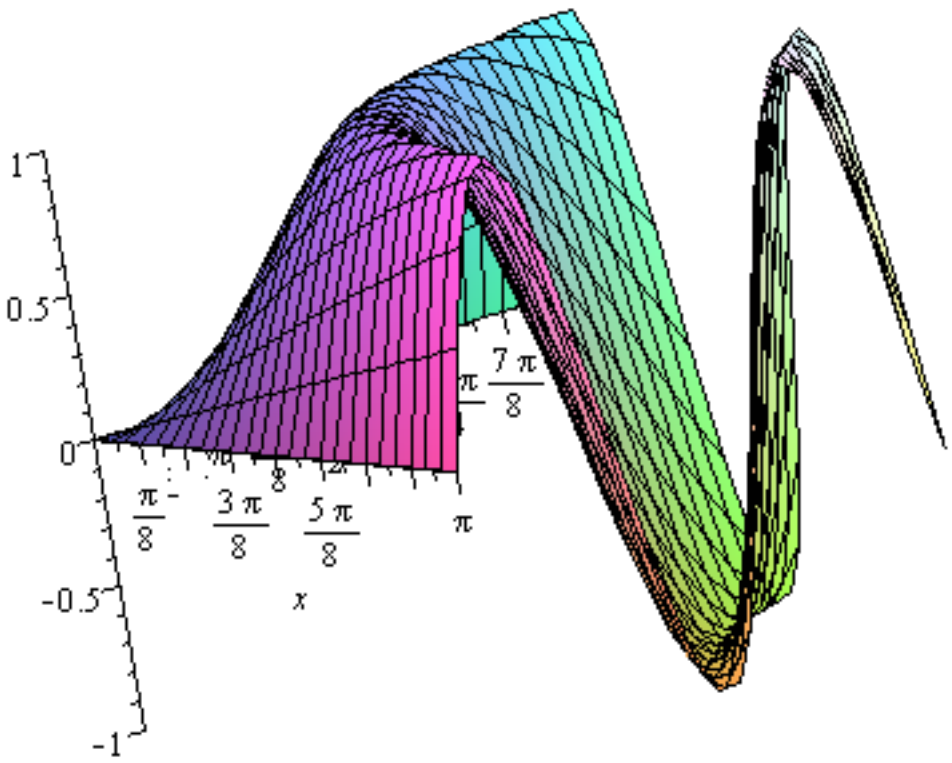

```
> plot(g(x),x,x=-2..2);
```




```
> plot( [g(x),4*x],    x=-2..2,
  thickness=2);
```




```
> plot3d(sin(x*y), x=0..Pi, y=0..Pi);
```




```
> "this is some text"
```

Warning, inserted missing semicolon at end of statement

"this is some text" **(41)**

```
> squares:=seq(i^2, i=1..100);
```

squares := 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 441, 484, 529, 576, 625, 676, 729, 784, 841, 900, 961, 1024, 1089, 1156, 1225, 1296, 1369, 1444, 1521, 1600, 1681, 1764, 1849, 1936, 2025, 2116, 2209, 2304, 2401, 2500, 2601, 2704, 2809, 2916, 3025, 3136, 3249, 3364, 3481, 3600, 3721, 3844, 3969, 4096, 4225, 4356, 4489, 4624, 4761, 4900, 5041, 5184, 5329, 5476, 5625, 5776, 5929, 6084, 6241, 6400, 6561, 6724, 6889, 7056, 7225, 7396, 7569, 7744, 7921, 8100, 8281, 8464, 8649, 8836, 9025, 9216, 9409, 9604, 9801, 10000 **(42)**

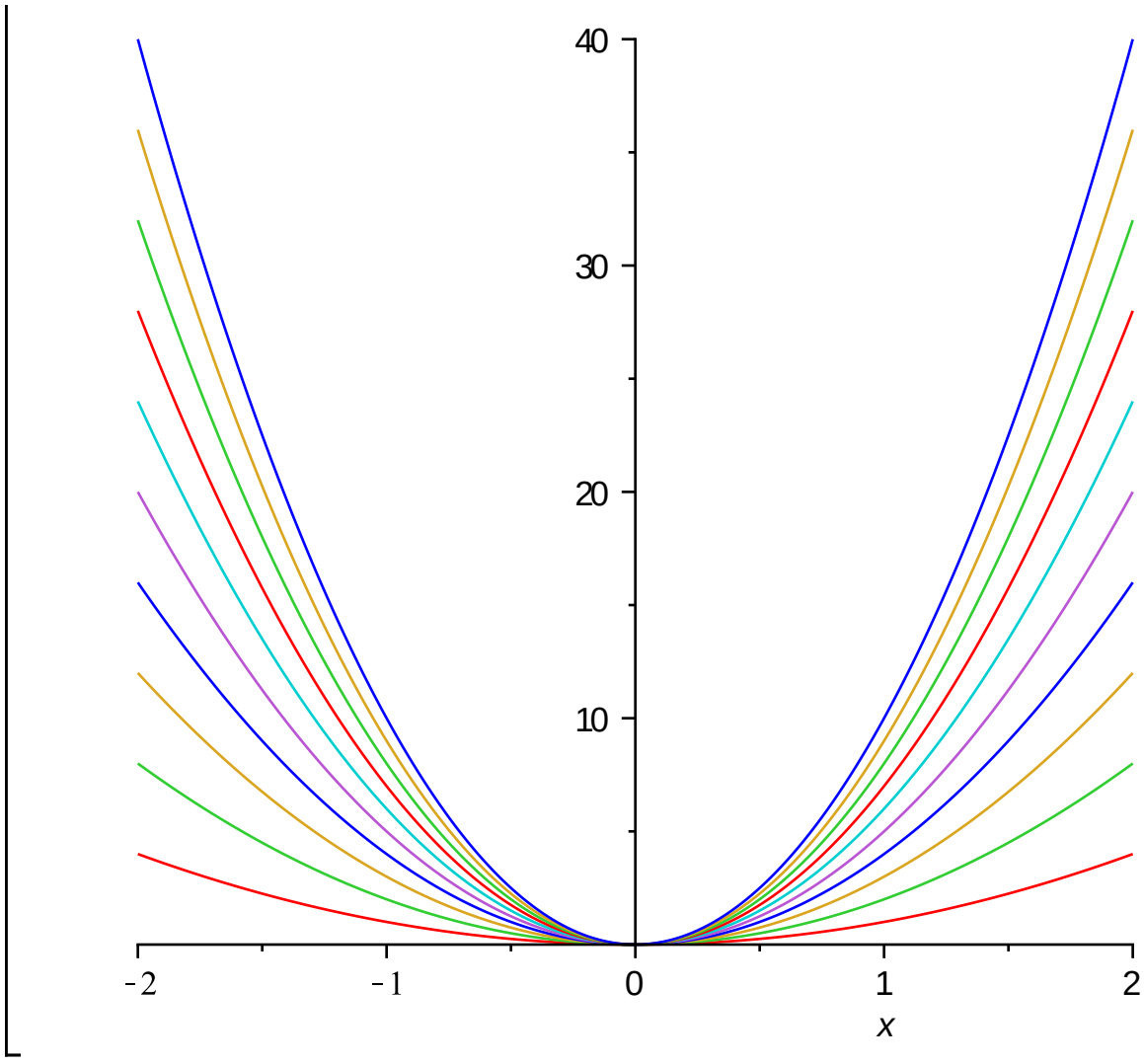
```
> squares[4];
```

16 **(43)**

```
> seq(n*x^2, n=1..4);
```

$x^2, 2x^2, 3x^2, 4x^2$ **(44)**

```
> plot([seq( n*x^2, n=1..10)], x=-2..2);
```


40
30
20
10
-2
-1
0
1
2
x