```
> 3 + 5
```

$$8 \tag{1}$$

```
> (7890123578901257890 · 7890782578905) / 8905789012547890
```

$$\frac{622592496818016159796026788104 5}{890578901254789} \tag{2}$$

```
> evalf(Pi/6, 50)
```

$$0.52359877559829887307710723054658381403286156656253 \tag{3}$$

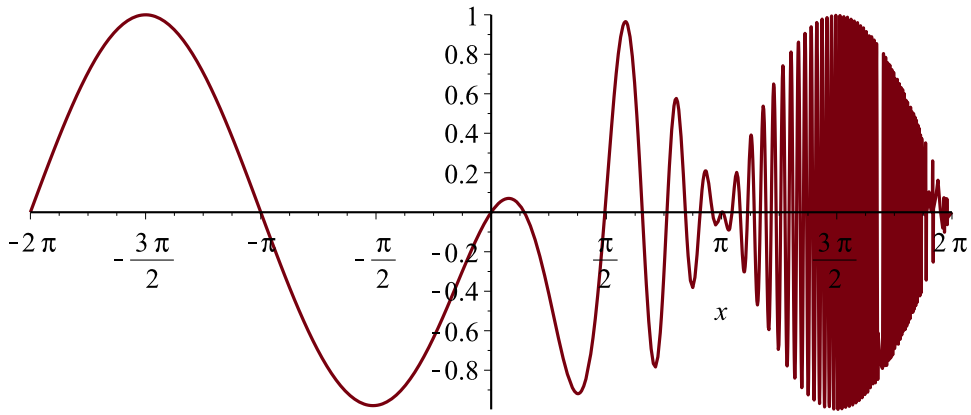
```
> evalf[20]( (2) )
```

$$6.9908740925796576656\ 10^{15} \tag{4}$$

```
> frank := sin(x)·cos(exp(x))
```

$$frank := \sin(x)\ \cos\left(e^{x}\right) \tag{5}$$

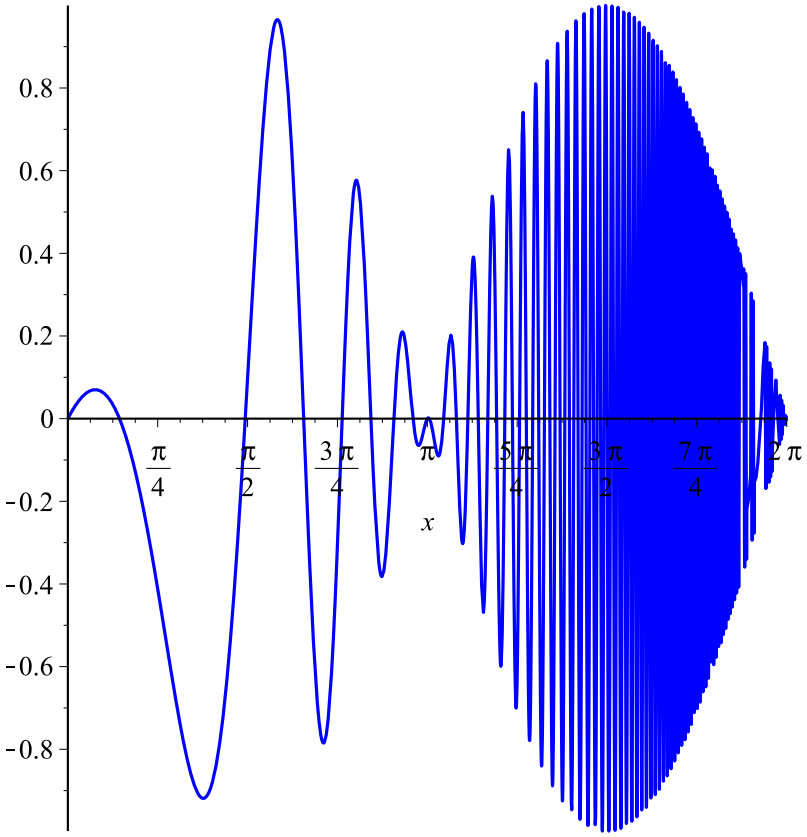
```
> smartplot( (5) )
```




```
> frank;
```

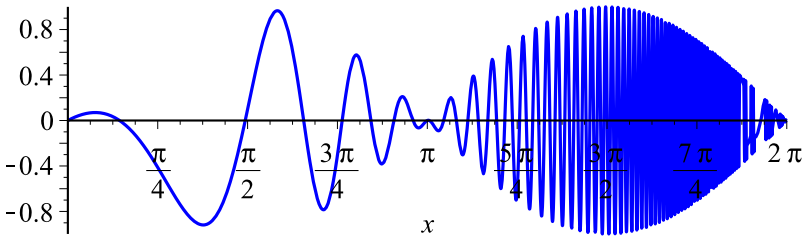
$$\sin(x)\ \cos\left(e^{x}\right) \tag{6}$$

```
> plot(frank, x = 0..2·Pi, color = blue);
```




```
> plot( frank, x = 0 ..2 · Pi, color = blue, scaling = constrained);
```

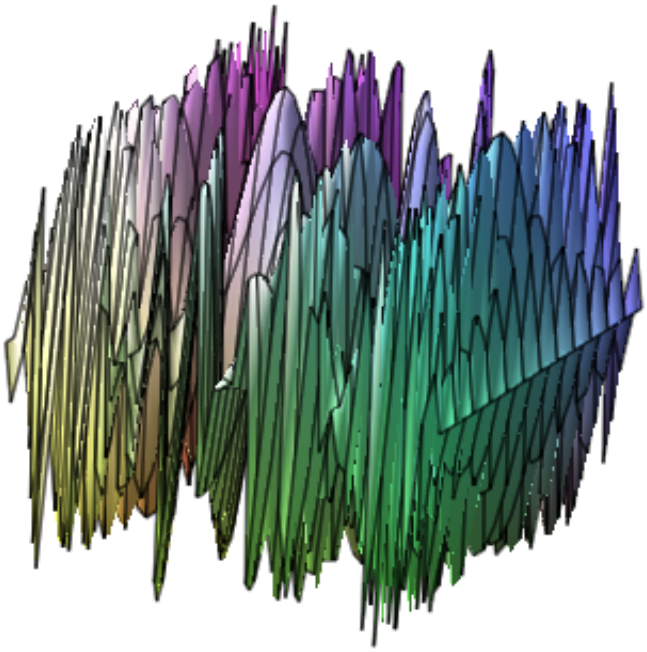
some fishy graph



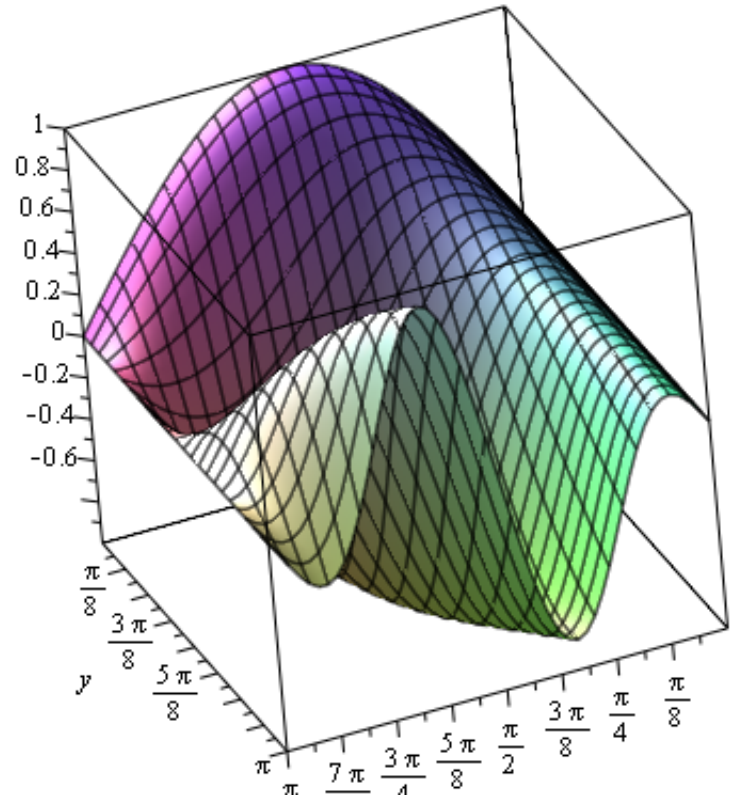

```
> ?plot
> earnest := sin(x)·cos(x·y)
```

$$earnest := \sin(x)\ \cos(x\,y) \qquad \textbf{(7)}$$

```
> smartplot3d[x, y]( (7) )
```



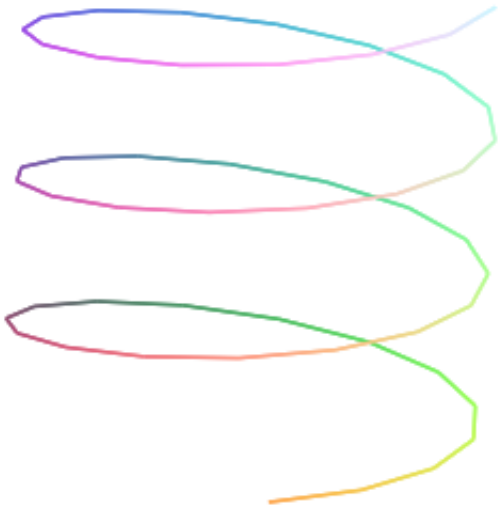
```
> plot3d(earnest, x = 0 ..Pi, y = 0 ..Pi, axes = boxed);
```




```
> spacecurve( [cos(t) , sin(t), t, t=0..5]);
```

$$spacecurve([\cos(t), \sin(t), t, t = 0..5]) \quad \textbf{(8)}$$

```
> with(plots) :
> spacecurve( [cos(t) , sin(t), t, t=0..20]);
```



> $tubeplot([\cos(t), \sin(t), t, t = 0..20])$

Remember our function frank? **he** w*as n*ice.
He was kinda like e^x, but more complicated.

> *frank*;

$$\sin(x)\ \cos\left(e^x\right) \tag{9}$$

>

> *diff* (**(9)**, *x*)

$$\cos(x)\ \cos\left(e^x\right) - \sin(x)\ \sin\left(e^x\right)\ e^x \tag{10}$$

> *dfrank* := **(10)** : '*dfrank*'

dfrank (11)

> *dfrank*;

$$\cos(x)\ \cos\left(e^x\right) - \sin(x)\ \sin\left(e^x\right)\ e^x \tag{12}$$

> *frank*(.35);

$$\sin(x)(0.35)\ \cos\left(e^x\right)(0.35) \tag{13}$$

> *eval*(*frank*, *x* = .35);

0.05182806880 (14)

```
> eval( frank, x = Pi/4 );
```

$$\frac{1}{2}\sqrt{2}\cos\left(e^{\frac{1}{4}\pi}\right) \quad (15)$$

```
> f := x -> x^3
```

$$f := x \to x^3 \quad (16)$$

```
> f(3);
```

$$27 \quad (17)$$

```
> f( 1/2 );
```

$$\frac{1}{8} \quad (18)$$

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

$$0 \quad (19)$$

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

$$3x^2 \quad (20)$$

```
> frank;
```

$$\sin(x)\cos(e^x) \quad (21)$$

```
> unapply( frank, x );
```

$$x \to \sin(x)\cos(e^x) \quad (22)$$

```
> g := %;
```

$$g := x \to \sin(x)\cos(e^x) \quad (23)$$

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

$$x \to \cos(x)\cos(e^x) - \sin(x)\sin(e^x)e^x \quad (24)$$

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

$$\cos(x)\cos(e^x) - \sin(x)\sin(e^x)e^x \quad (25)$$

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

$$x \to \cos(x)\cos(e^x) - \sin(x)\sin(e^x)e^x \quad (26)$$

```
>
>
> int(x^3, x = 1..5);
```

$$156 \quad (27)$$

```
> int(x^3, x);
```

$$\frac{1}{4}x^4 \quad (28)$$

```
> ifrank := int( frank, x = 1..4 );
```

$$ifrank := \int_1^4 \sin(x)\cos(e^x)\,dx \quad (29)$$

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

$$\frac{-2\tan\left(\frac{1}{2}x\right)\tan\left(\frac{1}{2}e^{x}\right)^{2}+2\tan\left(\frac{1}{2}x\right)}{\left(1+\tan\left(\frac{1}{2}x\right)^{2}\right)\left(1+\tan\left(\frac{1}{2}e^{x}\right)^{2}\right)} \quad (30)$$

```
> evalf(ifrank);
```

$$-0.1685687398 \quad (31)$$

```
>
>
>
>
> ifactor(234789125789012578901578 90);
```

$$(2)(5)(253748983)(9252810514279483) \quad (32)$$

```
> isprime(81235143463246364631246346 3246377);
```

$$false \quad (33)$$

```
> nextprime(81235143463246364631246346 3246377);
```

$$81235143463246364631246346 3246567 \quad (34)$$

```
> ifactor(
    234124399999999999999999999999999999999999999999999999999999999999999999999999999999\
    999999999999999999999999999999999999999999999999999999999999999999999999999999999999\
    999999999999999999999999999999999999999999999999999999999999999999999999999999999999\
    99999999999999999999999999999999999999999777777777);
```

Warning, computation interrupted

```
> isprime(
    234124399999999999999999999999999999999999999999999999999999999999999999999999999999\
    999999999999999999999999999999999999999999999999999999999999999999999999999999999999\
    999999999999999999999999999999999999999999999999999999999999999999999999999999999999\
    99999999999999999999999999999999999999999777777777);
```

$$false \quad (35)$$

```
>
```