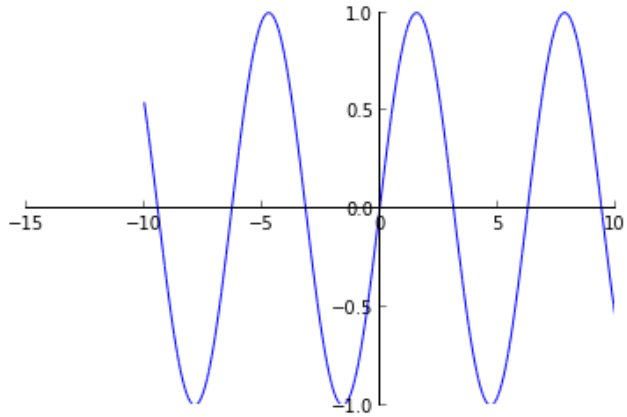
Coloring

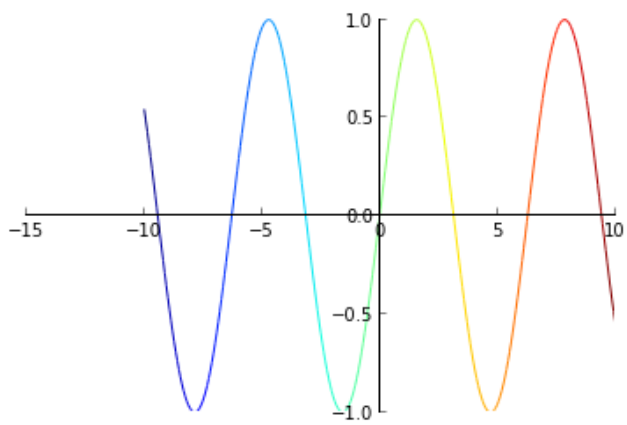
Cartesian Line Plot

In [1]:
```
p = plot(sin(x))
```



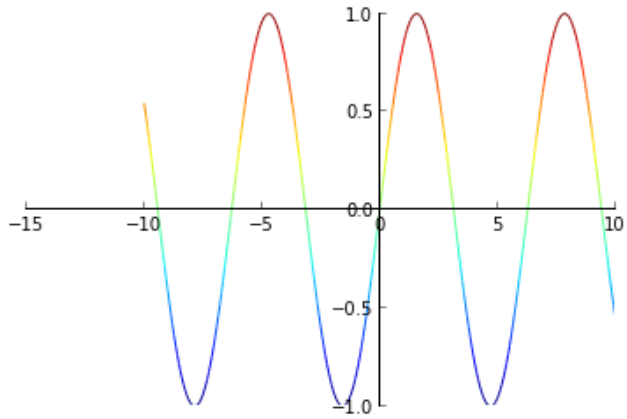
If the `line_color` aesthetic is a function of arity 1 then the coloring is a function of the x value of a point.

In [2]:
```
p[0].line_color = lambda a : a
p.show()
```



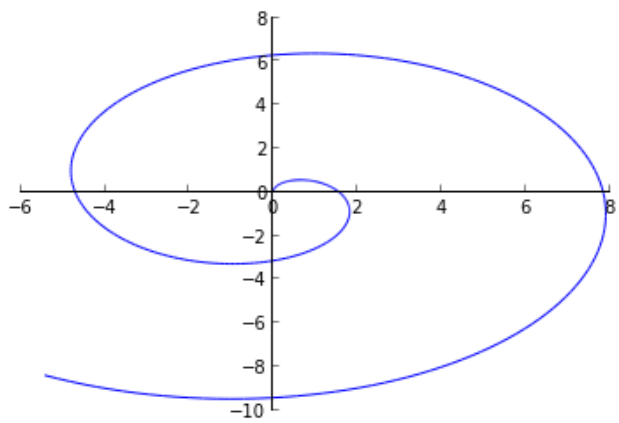
If the arity is 2 then the coloring is a function of both coordinates.

In [3]:
```
p[0].line_color = lambda a, b : b
p.show()
```



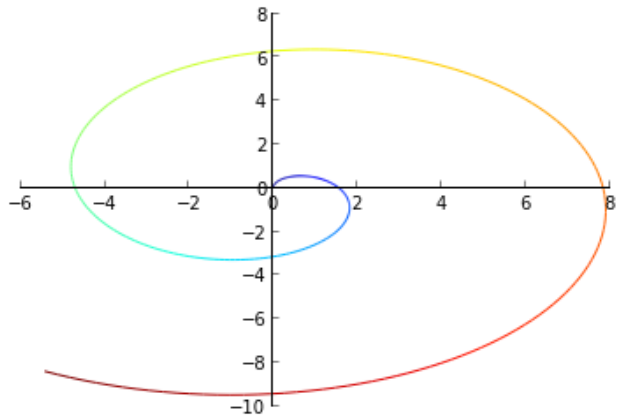
Parametric Lines

In [4]:
```
p = plot(x*sin(x), x*cos(x), (0,10))
```



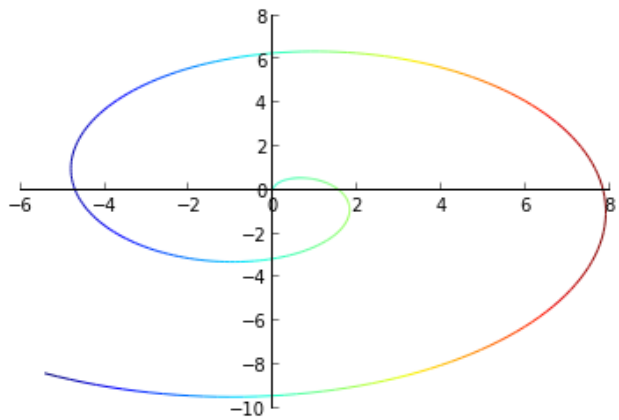
If the arity is 1 the coloring depends on the parameter.

In [5]:
```
p[0].line_color = lambda a : a
p.show()
```

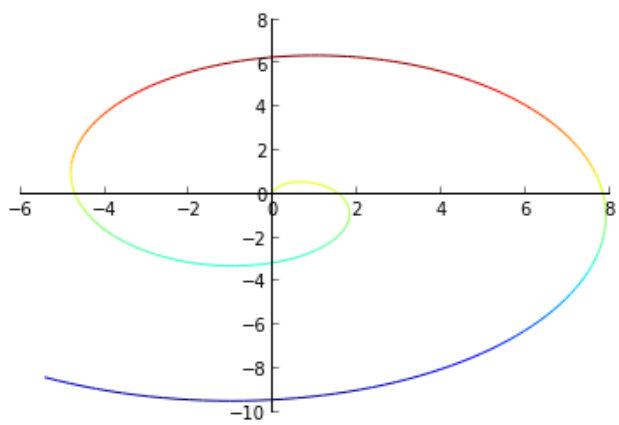


For arity 2 the coloring depends on coordinates.

In [6]:
```
p[0].line_color = lambda a, b : a
p.show()
```



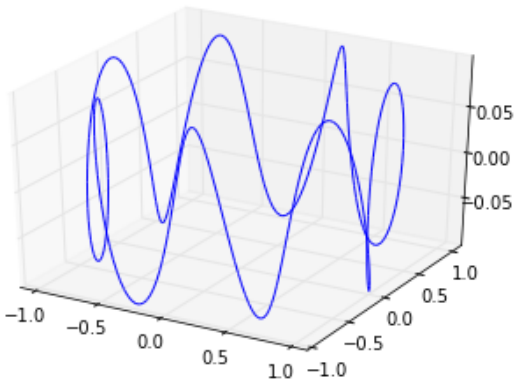
In [7]:
```
p[0].line_color = lambda a, b : b
p.show()
```



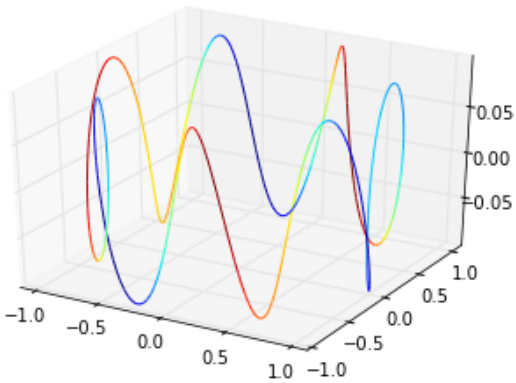
3D Parametric line

Arity 1 - the first parameter. Arity 2 or 3 - the first two coordinates or all coordinates.

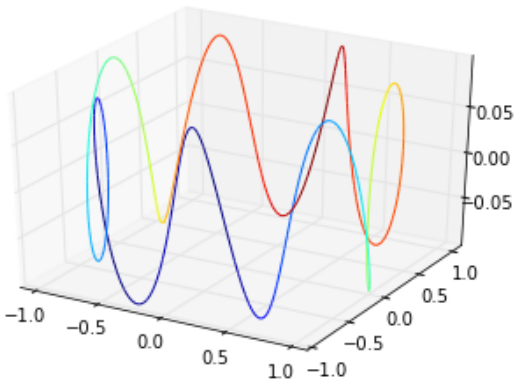
In [8]:
```
p = plot(sin(x)+0.1*sin(x)*cos(7*x),
         cos(x)+0.1*cos(x)*cos(7*x),
         0.1*sin(7*x),
         (0, 2*pi))
```



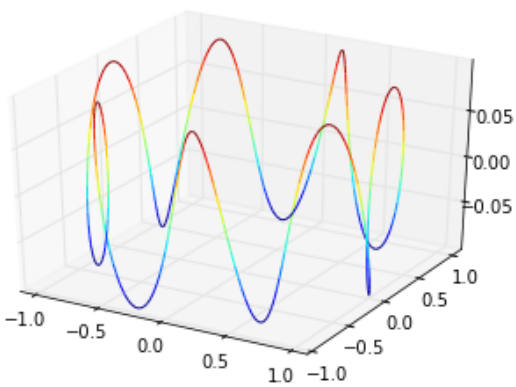
In [9]:
```
p[0].line_color = lambda a : sin(4*a)
p.show()
```



In [10]:
```
p[0].line_color = lambda a, b : b
p.show()
```

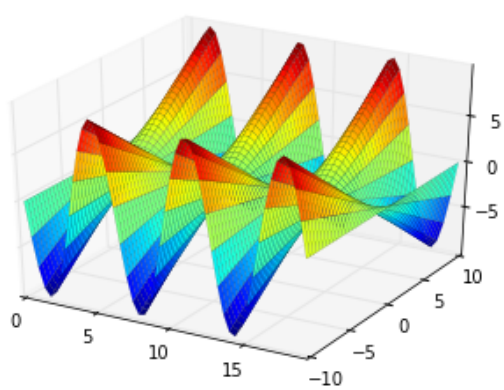


In [11]:
```
p[0].line_color = lambda a, b, c : c
p.show()
```



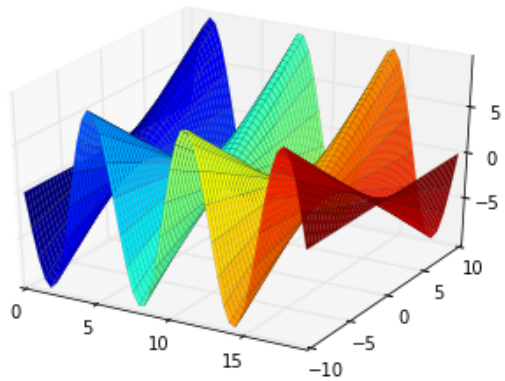
Cartesian Surface Plot

In [12]:
```
p = plot(sin(x)*y, (0,6*pi))
```

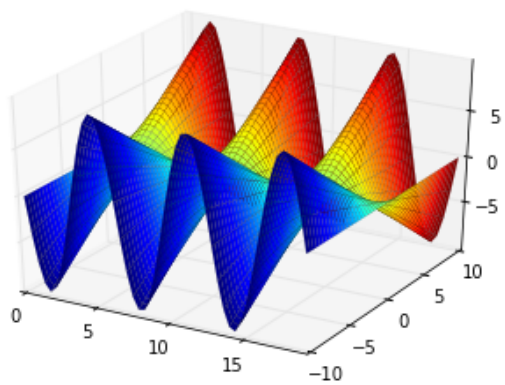


Arity 1, 2 or 3 for first, the two first or all coordinates.

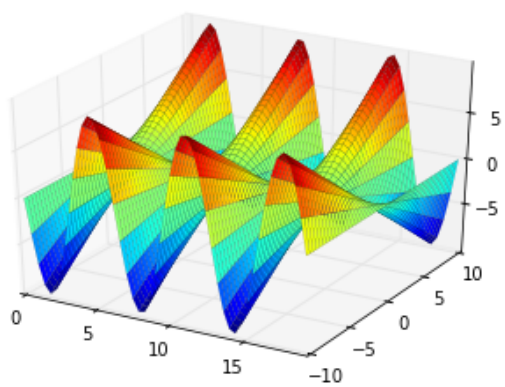
In [13]:
```
p[0].surface_color = lambda a : a
p.show()
```



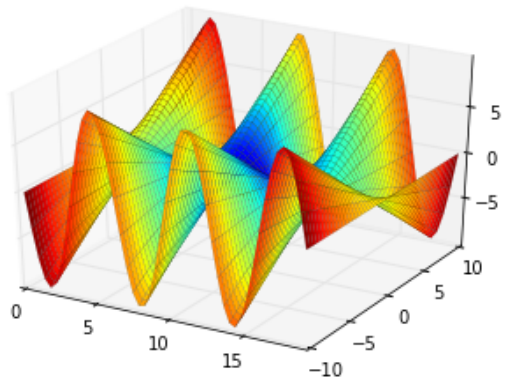
In [14]:
```
p[0].surface_color = lambda a, b : b
p.show()
```



In [15]:
```
p[0].surface_color = lambda a, b, c : c
p.show()
```



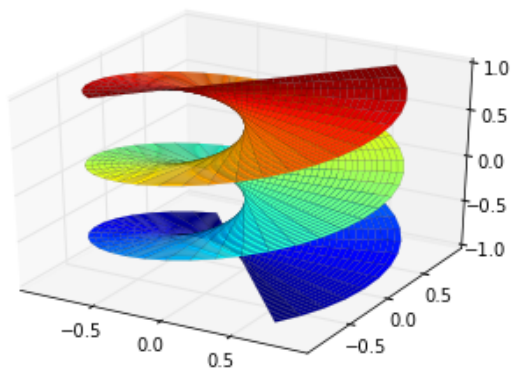
In [16]:
```
p[0].surface_color = lambda a, b, c : sqrt((a-3*pi)**2+b**2)
p.show()
```



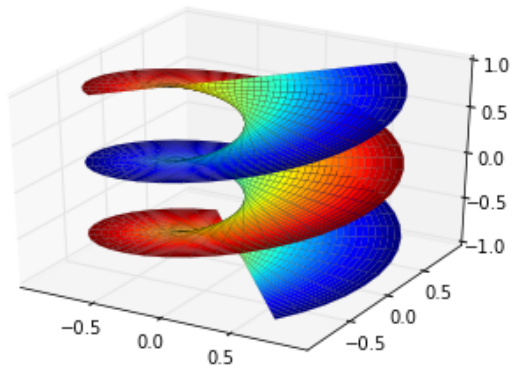
Parametric surface plots

Arity 1 or 2 - first or both parameters.

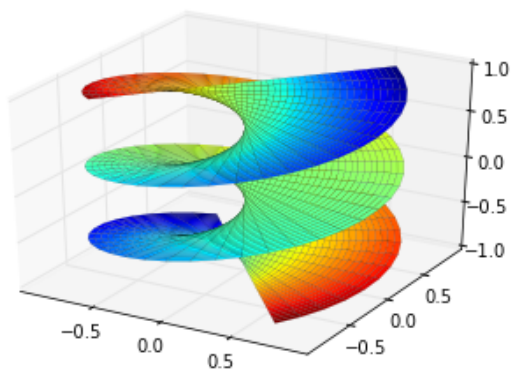
In [17]:
```
p = plot(x*cos(4*y), x*sin(4*y), y,
         (-1, 1), (-1, 1))
```



In [18]:
```
p[0].surface_color = lambda a : a
p.show()
```



In [19]:
```
p[0].surface_color = lambda a, b : a*b
p.show()
```



Arrity of 3 will color by coordinates.

In [20]:
```
p[0].surface_color = lambda a, b, c : sqrt(a**2+b**2+c**2)
p.show()
```