Blatt 3

Aufgabe 9

```
> restart:
> Leibnitz := Sum((-1)^k/(2*k + 1), k = 0..n);
> Limit(Leibnitz, n = infinity) = limit(Leibnitz, n = infinity);
> Log := Sum(-(-x)^k/k, k = 1..n);
> Limit(Log, n = infinity) = limit(Log, n = infinity);
> Sin := Sum((-1)^k * x^(2*k+1) / (2*k+1)!, k = 0..n);
> Limit(Sin, n = infinity) = limit(Sin, n = infinity);
```

Aufgabe 10

```
> restart: with(plots):
> spacecurve([t*sin(t),t*cos(t),t],t=0..8*Pi, numpoints = 500, color = blue, axes = none,
  orientation = [ 50, 68, 6 ]);
> T:=(s,t) -> [ (2 + cos(t)) * cos(s),(2 + cos(t)) * sin(s), sin(t)];
> p1 := plot3d(T(s, t), s = 0..2*Pi,t = 0..2*Pi, color = [0, 0.5, 0]);
> p2 := spacecurve(T(s, 10*s), s = 0..2*Pi,thickness=4,numpoints=600, color = gold);
> display([ p1, p2 ], scaling = constrained, orientation = [ 0, 55, 13 ]);
```

Aufgabe 11

```
> restart:
> with(plots):
> u := (x, t) -> exp(-(x-t)^2) + exp(-(x+t/2)^2);
> animate(plot, [ u(x, t), x=-8..8, thickness=3 ], t = 0..10, frames = 50);
```

Aufgabe 12

```
> restart:
> with(plots):
> F := (x, y) -> sin(x);
> ?tubeplot
> tubeplot({ [cos(t), sin(t), 0], [ 1/sqrt(2) * sin(t), 1+1/sqrt(2) * sin(t), cos(t) ] }, t = 0.
  .4*Pi, radius = 0.1, scaling = constrained, color = F);
```