Below are two sample problems that indicate how to sketch a solution using Maple and how to find a numerical solution using Maple.

1. Sketch the direction fields of the
   \[
   \frac{dx}{dt} = t \sin(x).
   \]
   in the region \(0 \leq t \leq 2\), \(0 \leq x \leq 2\).

   A plot of the direction fields for this differential equation can be produced by Maple using the following commands:

   ```maple
   with(DEtools);
   dfieldplot(diff(x(t),t) = t*sin(x),[x],t=0..2,x=0..2);
   ```

2. Construct a numerical solution of the differential equation
   \[
   \frac{dx}{dt} = x^2 t, \quad \forall \, t \in [0,1].
   \]
   such that
   \[
   x(0) = 1.
   \]
   on the interval \([0,1]\).

   ```maple
   N:= 1000; #number of iterations
   t[0] := 0.0; #initial value of t
   x[0] := 1.0; #initial value of x
   t[N] := 1.0; #final value of t
   dt := (t[N]- t[0])/N; #step size
   f := (x, t) -> t*x^2; # the function on the R.H.S.
   # of the differential equation
   for i from 1 to N do # start of iterative procedure
     t[i] := t[i-1] + dt;
     x[i] := x[i-1] + dt*f(x[i-1],t[i-1]); # next value of t
   od:
   ```

To see a plot of these points you can use the following Maple commands

```maple
with(plots);
pointlist := {seq([t[n],x[n]],n=0..1000)};
pointplot(pointlist);
```