```
> restart;
> with(Student[NumericalAnalysis]):
> Digits:=100:
```

```
> eulersMethod:=proc(N,x0)
    local x,i;
    x:=x0:
    for i from 1 to N do
      x:=x+1/N*cos(x0)/sin(x):
    end do;
    evalf(x);
  end proc:
```

```
> N:=1:
  while abs(eulersMethod(N,0.1)-evalf(Pi/2)) > 0.001 do
    N:=N+100:
> end do:
  print('N'=N,eulersMethod(N,0.1));
```

$$N = 1201,\ 1.57175962553972361997809477824373861528789379118369767267057056658317819064408077380871345407895119 5 \tag{1}$$