```
> restart;
> f:=(x,y)->0.2*sin(x)*y;
```

$$f := (x, y) \to 0.2 \sin(x)\, y$$

```
> x[0]:=0;
  y[0]:=1;
```

$$x_0 := 0$$

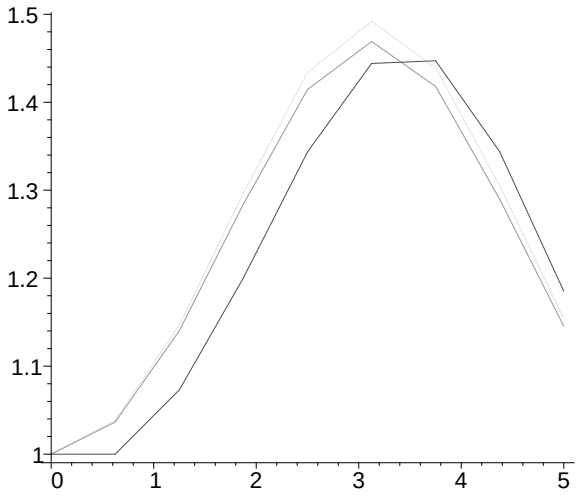
$$y_0 := 1$$

```
> n:=8;
  h:=5.0/n;
```

$$n := 8$$

$$h := 0.6250000000$$

```
> ye[0]:=y[0]:
  for i from 0 to n-1 do
     x[i+1]:=x[0]+h*(i+1);
     ye[i+1]:=ye[i]+h*f(x[i],ye[i]);
  od:
> yi[0]:=y[0]:
  for i from 0 to n-1 do
     x[i+1]:=x[0]+h*(i+1);
     yp:=yi[i]+h*f(x[i],yi[i]);
     yi[i+1]:=0.5*(yi[i]+yp+h*f(x[i+1],yp));
  od:
> yk[0]:=y[0]:
  for i from 0 to n-1 do
     x[i+1]:=x[0]+h*(i+1);
     k1:=h*f(x[i],yk[i]);
     k2:=h*f(x[i]+0.5*h,yk[i]+0.5*k1);
     k3:=h*f(x[i]+0.5*h,yk[i]+0.5*k2);
     k4:=h*f(x[i+1],yk[i]+k3);
     yk[i+1]:=yk[i]+(1.0/6.0)*(k1+2*(k2+k3)+k4);
  od:
> plot([[seq([x[i],ye[i]],i=0..n)],
        [seq([x[i],yi[i]],i=0..n)],
        [seq([x[i],yk[i]],i=0..n)]]);
```




```
> [x[n], ye[n], yi[n], yk[n]];
```

[5.000000000, 1.185224870, 1.145393786, 1.154035261]

```
>
```