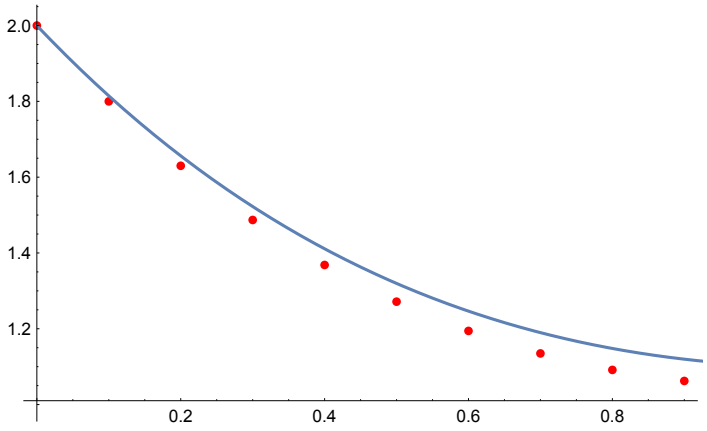
In[66]:=
```
(*Euler*)
(*dy/dx=x-y; y(0)=2*)
f[x_, y_] := x - y;
x = {};
y = {};
xn = 0;
xi = xn;
xf = 1;
yi = 2;
h = 0.1;
x = Append[x, xi];
y = Append[y, yi];
For[i = 1, i ≤ (xf - xn)/h, i++,
 xnn = xi + h;
 ynn = yi + h f[xi, yi];
 x = Append[x, xnn];
 y = Append[y, ynn];
 xi = xnn;
 yi = ynn;
]
T = Table[{x[[i]], y[[i]]}, {i, 1, (xf - xn)/h}];
```

In[•]:=
```
DSolve[{y'[x] == x - y[x], y[0] == 2}, y[x], x]
```

Out[•]=
$$\left\{\left\{y[x] \to e^{-x}\left(3 - e^{x} + e^{x} x\right)\right\}\right\}$$

In[78]:=
```
G1 = Plot[e^-x (3 - e^x + e^x x), {x, 0, 1}];
G2 = ListPlot[T, PlotStyle → RGBColor[1, 0, 0]];
Show[G2, G1]
```

Out[80]=



In[121]:=
```
(*Euler mejorado*)
f[x_, y_] := 0.1 √y + 0.4 x^2;
x = {};
y = {};
xn = 2;
xi = xn;
xf = 3.5;
yi = 4;
h = 0.1;
x = Append[x, xi];
y = Append[y, yi];
For[i = 1, i ≤ (xf - xn)/h, i++,
 xnn = xi + h;
 unn = yi + h f[xi, yi];
 ynn = yi + h ((f[xi, yi] + f[xnn, unn])/2);
 x = Append[x, xnn];
 y = Append[y, ynn];
 xi = xnn;
 yi = ynn;
]
Tm = Table[{x[[i]], y[[i]]}, {i, 1, (xf - xn)/h}];
Grid[Tm]
```

Out[133]=

2	4
2.1	4.18842
2.2	4.39413
2.3	4.61794
2.4	4.8607
2.5	5.12323
2.6	5.40636
2.7	5.71092
2.8	6.03775
2.9	6.38766
3.	6.76148
3.1	7.16005
3.2	7.58419
3.3	8.03472
3.4	8.51247

In[119]:=
```
G3 = ListPlot[Tm, PlotStyle → RGBColor[0, 1, 0]];
Show[G3, G2, G1]
```

Out[120]=