```
In[5]:=  ClearAll;
         Newtonraphson[x0_, max_] :=
         Module[{p0 = N[x0]},
         p1 = p0 - (f[p0] / f'[p0]);
         k = 0;
         While[k < max,
         p1 = p0 - (f[p0] / f'[p0]);
         p0 = p1;
         k = k + 1;
         Print["Value at ", k, "th iteration is: ", NumberForm[p1, 16]];];
         ];
         Newtonraphson[1, 10]
         f[x_] = (x^3) + (4 * (x^2)) - 10
```

Value at 1th iteration is: 1.454545454545455

Value at 2th iteration is: 1.368900401069519

Value at 3th iteration is: 1.365236600202116

Value at 4th iteration is: 1.365230013435367

Value at 5th iteration is: 1.365230013414097

Value at 6th iteration is: 1.365230013414097

Value at 7th iteration is: 1.365230013414097

Value at 8th iteration is: 1.365230013414097

Value at 9th iteration is: 1.365230013414097

Value at 10th iteration is: 1.365230013414097

Out[8]= $-10 + 4 x^2 + x^3$

```
In[9]:=  Newtonraphson[0.5, 10]
         f[x_] = Exp[-x] - x
```

Value at 1th iteration is: 2.368421052631579

Value at 2th iteration is: 1.649408073028098

Value at 3th iteration is: 1.397991493906514

Value at 4th iteration is: 1.365743858184125

Value at 5th iteration is: 1.365230142809137

Value at 6th iteration is: 1.365230013414105

Value at 7th iteration is: 1.365230013414097

Value at 8th iteration is: 1.365230013414097

Value at 9th iteration is: 1.365230013414097

Value at 10th iteration is: 1.365230013414097

Out[10]= $e^{-x} - x$

In[21]:= **Newtonraphson[0.1, 10]**

f[x_] = Cos[x] − x

Value at 1th iteration is: 12.09879518072289

Value at 2th iteration is: 7.720345458603296

Value at 3th iteration is: 4.858122394736339

Value at 4th iteration is: 3.042991364235539

Value at 5th iteration is: 1.983644681702598

Value at 6th iteration is: 1.494200784628973

Value at 7th iteration is: 1.372679799722194

Value at 8th iteration is: 1.365257074078494

Value at 9th iteration is: 1.36523001377309

Value at 10th iteration is: 1.365230013414097

Out[22]= $-x + \text{Cos}[x]$

In[11]:= **Newtonraphson[2, 10]**

f[x_] = (x^3) − 13

Value at 1th iteration is: 0.357608766066353

Value at 2th iteration is: 0.5587083284512576

Value at 3th iteration is: 0.567130383148795

Value at 4th iteration is: 0.5671432903796383

Value at 5th iteration is: 0.5671432904097839

Value at 6th iteration is: 0.5671432904097839

Value at 7th iteration is: 0.5671432904097839

Value at 8th iteration is: 0.5671432904097839

Value at 9th iteration is: 0.5671432904097839

Value at 10th iteration is: 0.5671432904097839

Out[12]= $-13 + x^3$

```
In[17]:= ClearAll;
       Newtonraphsonself[x0_, max_] :=
       Module[{p0 = N[x0]},
       k = 0;
       While[k < max,
       p1 = p0 - (f[p0] / f '[p0]);
       k = k + 1;
       p0 = p1;
       Print["Value at ", k, "th iteration is: ", NumberForm[p1, 16]];];
       ];
       Newtonraphsonself[1, 10]
       f[x_] = (x^3) + (4 * (x^2)) - 10
```

Value at 1th iteration is: 1.454545454545455

Value at 2th iteration is: 1.368900401069519

Value at 3th iteration is: 1.365236600202116

Value at 4th iteration is: 1.365230013435367

Value at 5th iteration is: 1.365230013414097

Value at 6th iteration is: 1.365230013414097

Value at 7th iteration is: 1.365230013414097

Value at 8th iteration is: 1.365230013414097

Value at 9th iteration is: 1.365230013414097

Value at 10th iteration is: 1.365230013414097

Out[20]= $-10 + 4\,x^2 + x^3$