```
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% RESULTS
```

1. Euler's Method

With h = 0.1 and $0 \leq t \leq 3$, N = 30 time steps, and 31 mesh-points. The approximations stating with $w_0 = 1$ and the mesh-points stating with $t_0 = 0$:

w =

1.000000000000000 1.100000000000000 1.209482908192435 1.329239214014906 1.460101176060286
1.602938941508217 1.758654602739847 1.928173643248766 2.112433101151471 2.312365628532519
2.528878443123328 2.762825948902089 3.014974536287863 3.285957751271781 3.576219634764213
3.885943565032588 4.214963371005299 4.562652802766848 4.927788624147497 5.308381602535702
5.701468478814916 6.102856564684834 6.506810886365036 6.905671713694631 7.289387810952086
7.644947735078342 7.955687886023664 8.200451659728227 8.352568819186589 8.378617905914201
8.236926950152736

y(3) ≈ 8.236926950152736

2. Taylor's Method of Order 2

w =

1.000000000000000 1.105000000000000 1.221005344421300 1.349165203005567 1.490747784795551
1.647152457221826 1.819923051680113 2.010762461004830 2.221548641066788 2.454352135324847
2.711455247313264 2.995372991449393 3.308875956814419 3.655015221198889 4.037149453086431
4.458974336578308 4.924554447536658 5.438357697189285 6.005292440522299 6.630747319029716
7.320633868354138 8.081431868015024 8.920237339033049 9.844813001185395 10.863640879142489
11.985976588780051 13.221904632830764 14.582393778028338 16.079351260834198 17.725674159541562
19.535295757154753

y(3) ≈ 19.535295757154753

3. The Runge-Kutta Order Four Method

w =

1.000000000000000 1.105170180599039 1.221401042368539 1.349855811152141 1.491820042319870
1.648714484504750 1.822109295838103 2.013739754840174 2.225523623054298 2.459580333010392
2.718252193331079 3.004127822931870 3.320068048515188 3.669234524136707 4.055121358774640
4.481590067826205 4.952908197586272 5.473792008357323 6.049453642256820 6.685653246424280
7.388756571622606 8.165798620657570 9.024553981135854 9.973614543428868 11.022475377948668
12.181629626679587 13.462673353120582 14.878421393231381 16.443035358576086 18.172165062647622
20.083104773460622

y(3) ≈ 20.083104773460622

```
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% GRAPH
```

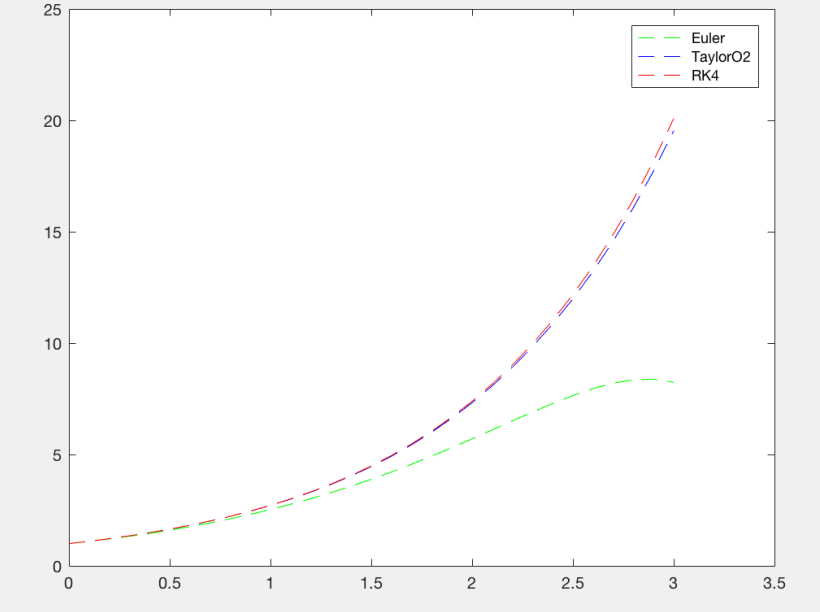

Fig. 1 Graph showing Euler, Taylor Order 2, and RK4 methods