Problem{08}: Demonstration of datatype error/precision utilizing convergence.

Table of Contents

Authorship

- File: Problem_08.m
- Copy: Copyright (c) 2020 name
- BlazerID: blazerid
- Vers: 1.0.0 02/18/2020 initials - comment
- Desc: Driver for testing concepts in E1.

Description

Given x ranging from 0 to 2*pi at an interval of pi/16, demonstrate using Matlab a table (disp or sprintf) and a plot of n iterations as a function of x. Include the results for double and single precision. Save your .m file and publish the .pdf to your drop folder on the L: Drive.

Results

```
disp('datatype        x_min    x_max    threshold    n_min    n_max');
disp('================================================================');
disp('double
    ');
disp('single
    ');
disp('fi(x,1,32,28)
    ');
disp('fi(x,1,32,24)
    ');
disp('fi(x,1,32,20)
    ');
disp('fi(x,1,32,16)
    ');
```

```
disp('fi(x,1,32,12)
    ');
disp('fi(x,1,32,8)
    ');
disp('fi(x,1,32,4)
    ');
disp('=================================================================');
```

```
datatype        x_min    x_max    threshold    n_min    n_max
=================================================================
double
single
fi(x,1,32,28)
fi(x,1,32,24)
fi(x,1,32,20)
fi(x,1,32,16)
fi(x,1,32,12)
fi(x,1,32,8)
fi(x,1,32,4)
=================================================================
```

Plot

- x vs n for each datatype/combination
- title
- legend
- axis labels
- all graphs in one plot.

Bonus

Make a 3D plot of the following:

x = [x_min : x_delta : x_max];

fraction_length = [fraction_length_ min : 1 : fraction_length_ max];

n_max for a given x and fraction_length.

Published with MATLAB® R2018a