```
macheps = 1.0
```

```
macheps = 1
```

```
k = 0
```

```
k = 0
```

```
while 1+macheps > 1
    k = k - 1
    macheps = macheps / 2
end
```

```
k = -1
macheps = 0.5000
k = -2
macheps = 0.2500
k = -3
macheps = 0.1250
k = -4
macheps = 0.0625
k = -5
macheps = 0.0313
k = -6
macheps = 0.0156
k = -7
macheps = 0.0078
k = -8
macheps = 0.0039
k = -9
macheps = 0.0020
k = -10
macheps = 9.7656e-04
k = -11
macheps = 4.8828e-04
k = -12
macheps = 2.4414e-04
k = -13
macheps = 1.2207e-04
k = -14
macheps = 6.1035e-05
k = -15
macheps = 3.0518e-05
k = -16
macheps = 1.5259e-05
k = -17
macheps = 7.6294e-06
k = -18
macheps = 3.8147e-06
k = -19
macheps = 1.9073e-06
k = -20
macheps = 9.5367e-07
k = -21
macheps = 4.7684e-07
k = -22
macheps = 2.3842e-07
k = -23
macheps = 1.1921e-07
```

```
k = -24
macheps = 5.9605e-08
k = -25
macheps = 2.9802e-08
k = -26
macheps = 1.4901e-08
k = -27
macheps = 7.4506e-09
k = -28
macheps = 3.7253e-09
k = -29
macheps = 1.8626e-09
k = -30
macheps = 9.3132e-10
k = -31
macheps = 4.6566e-10
k = -32
macheps = 2.3283e-10
k = -33
macheps = 1.1642e-10
k = -34
macheps = 5.8208e-11
k = -35
macheps = 2.9104e-11
k = -36
macheps = 1.4552e-11
k = -37
macheps = 7.2760e-12
k = -38
macheps = 3.6380e-12
k = -39
macheps = 1.8190e-12
k = -40
macheps = 9.0949e-13
k = -41
macheps = 4.5475e-13
k = -42
macheps = 2.2737e-13
k = -43
macheps = 1.1369e-13
k = -44
macheps = 5.6843e-14
k = -45
macheps = 2.8422e-14
k = -46
macheps = 1.4211e-14
k = -47
macheps = 7.1054e-15
k = -48
macheps = 3.5527e-15
k = -49
macheps = 1.7764e-15
k = -50
macheps = 8.8818e-16
k = -51
macheps = 4.4409e-16
k = -52
macheps = 2.2204e-16
k = -53
macheps = 1.1102e-16
```

```
macheps
```

```
macheps = 1.1102e-16
```

```
k
```

```
k = -53
```

```
% 2^-53 is machine epsilon, or 1.1102e-16
```

```
ans = logical
   0
```

```
eps('double')
```

```
ans = 2.2204e-16
```

```
%matlab epsilon says it is 2^-52, however both of the given answers are
%incrrect by the given defiention. 1.1103e-16 gives correct result for
%1+g>1.
```