Quiz 12   Name: _____Key_____

You must show your work to get full credit.

Let N_t satisfy

$$N_t = 54 - .8N_t \qquad N_0 = 5$$

1. Find the equilibrium point of system.

The equilibrium point is _____$N_* = 30$_____

Solve

$$N = 54 - .8N$$
$$N + .8N = 54$$
$$(1.8)N = 54$$
$$N = \frac{54}{1.8} = 30$$

2. Compute the following to 4 decimal places.

Change the MODE to [Seq]

In Y= window set

nMin = 0
\u(n) = 54 - .8u(n-1)
u(nMin) = 5

In WINDOW set

nMin = 0
nMax = 50

Now you can use

2ND CALC 1:VALUE to
do the calculations

$N_1 =$ _____50.0000_____

$N_5 =$ _____38.1920_____

$N_{10} =$ _____27.3156_____

$N_{20} =$ _____29.7118_____

$N_{30} =$ _____29.9691_____

$N_{49} =$ _____30.0004_____

$N_{50} =$ _____29.9996_____