

$$\begin{cases}
 \cancel{U_n = 30} \\
 \cancel{U_n = 0.8 U_{n-1} + 10}, n \geq 1
 \end{cases}$$

at the LTV

$$\begin{aligned}
 x &= 0.8x + 10 \\
 -0.8x & \quad -0.8x
 \end{aligned}$$

$$\frac{0.2x}{0.2} = \frac{10}{0.2}$$

$$x = 50$$

Change  $\Rightarrow$  lose 10% each 6 hrs  
lose 10mg

..., 50, 50, 50, 50, ...

$$\begin{aligned}
 &\downarrow \downarrow \\
 &u_{n-1} = u_n = \text{LTV} = x
 \end{aligned}$$

solve for x

change dose to 15

$$\begin{aligned}
 x &= 0.8x + 15 \\
 -0.8x & \quad -0.8x
 \end{aligned}$$

$$\frac{0.2x}{0.2} = \frac{15}{0.2}$$

$$x = 75$$

$$x = (1 - 0.10)x + 10$$

$$\begin{aligned}
 x &= 0.9x + 10 \\
 -0.9x & \quad -0.9x
 \end{aligned}$$

$$\frac{0.1x}{0.1} = \frac{10}{0.1}$$

$$x = 100$$

At the LTV  $u_n = u_{n-1} = x$

to find LTV, replace  $u_n$  &  $u_{n-1}$  with  $x$   
and solve for  $x$

$$\begin{cases} u_0 = 15 \\ u_n = u_{n-1}(0.85) + 20 \end{cases}$$

find LTV

$$x = x(0.85) + 20$$

$$-0.85x \quad -0.85x$$

---

$$\frac{0.15x}{0.15} = \frac{20}{0.15}$$

$$x = 133\frac{1}{3}$$

$$x = 133.\bar{3} = \text{LTV}$$

$$x \approx 133$$

$$u_0 = 4$$

$$u_n = (u_{n-1})(2)$$

4, 8, 16, 32, 64.

$$\text{LTV} \quad u_n = u_{n-1} = x$$

$$\begin{array}{r} x = 2x \\ -x \quad -x \end{array}$$

$$0 = x$$

$$u_0 = 4$$

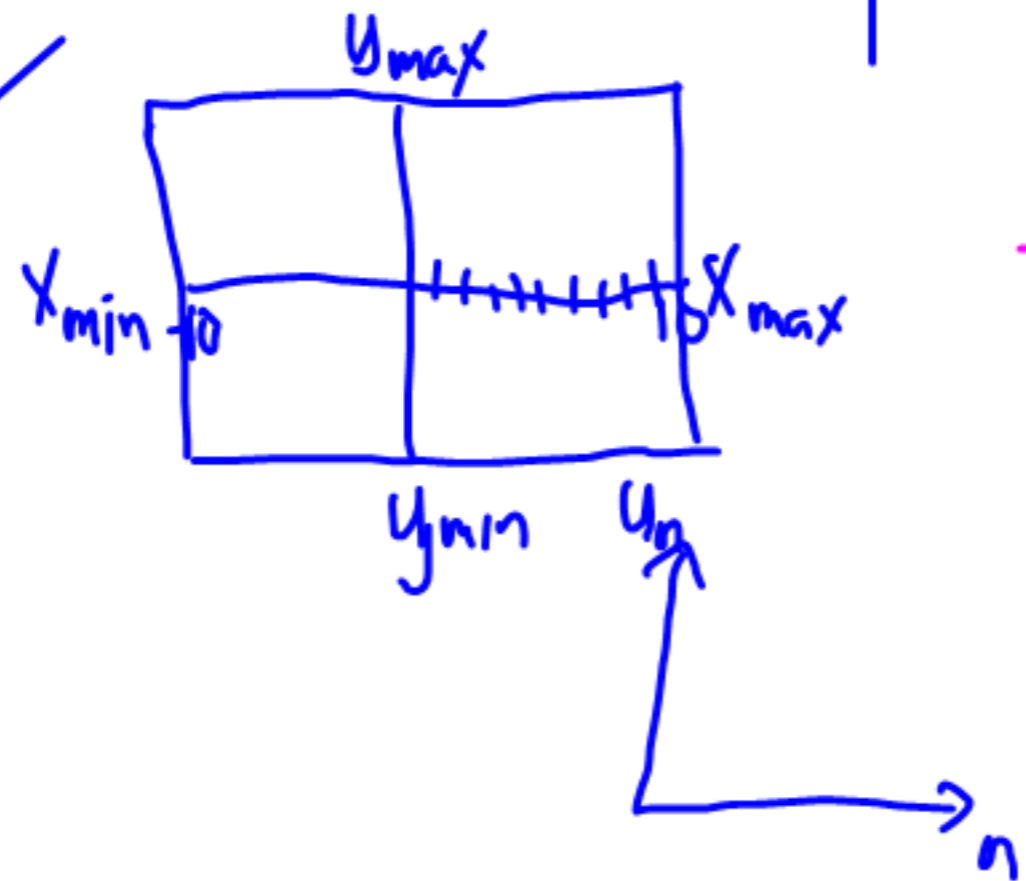
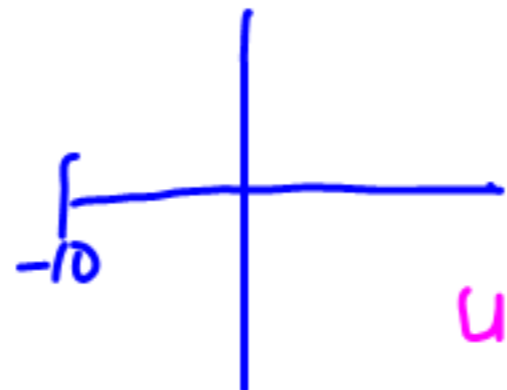
$$u_n = u_{n-1} + 7$$

$$\text{LTV} - u_n = u_{n-1} = x$$

$$\begin{array}{r} x = x + 7 \\ -x \quad -x \end{array}$$

$$0 = 7 \quad \text{never happens}$$

$$\begin{cases} U_0 = 30 \\ U_n = U_{n-1} (0.8) + 10 \end{cases}$$



$$U_n = U_{n-1} - U_{n-1} (0.05) + 10$$

$$U_n = U_{n-1} (0.95) + 10$$

Decay by 5%  
 $(1 - \frac{Pr}{100})$   
 $1 - \frac{5}{100} = 1 - .05$   
 $.95$

$$u_0 = 30$$

$$u_n = u_{n-1} (.8) + 10$$

LTV ... , 50, 50, 50, 50, ...

$\downarrow$       $\downarrow$   
 $u_{n-1} = u_n = x$

$x = x(.8) + 10$  solve for  $x$

$$\begin{array}{r} - .8x \quad - x(.8) \\ 2x = 10 \\ \hline .2 \quad .2 \end{array}$$

$$x = 50$$

$$u_n = .8(u_{n-1}) + 24$$

LTV  $u_n = u_{n-1} = x$

$$x = .8x + 24$$

$$\begin{array}{r} - .8x \quad - .8x \\ 0.2x = 24 \\ \hline .2 \quad .2 \end{array}$$

$$x = 120$$

$$u_n = 0.7u_{n-1} + 10$$

$$x = u_n = u_{n-1}$$

$$x = 0.7x + 10$$

$$\begin{array}{r} - 0.7x \quad - 0.7x \\ 0.3x = 10 \\ \hline .3 \quad .3 \end{array}$$

$$x = 33\frac{1}{3}$$

$$\begin{cases} u_0 = 30 \\ u_n = u_{n-1}(0.8) + 10, n \geq 2 \end{cases}$$

$$LTV = 50$$

Find LTV without graph or table.

... 50, 50, 50, 50, ...

$$\begin{matrix} \downarrow & \downarrow \\ u_{n-1} & = & u_n & = & x & \Rightarrow \text{substitute} \end{matrix}$$

$$\begin{array}{r} x = x(0.8) + 10 \\ \sim -0.8x \quad -0.8x \\ \hline 0.2x = 10 \\ \hline 0.2 \quad 0.2 \\ \hline x = \underline{50} \end{array}$$

$$u_n = (u_{n-1})(0.8) + 25$$

$$LTV \quad u_n = u_{n-1} = x$$

$$\begin{array}{r} x = 0.8x + 25 \\ \sim -0.8x \quad -0.8x \\ \hline 0.2x = 25 \\ \hline 0.2 \quad .2 \\ \hline x = 125 \end{array}$$

$$u_n = 0.95u_{n-1} + 10$$

$$\begin{array}{r} x = 0.95x + 10 \\ \sim -0.95x \quad -0.95x \\ \hline 0.05x = 10 \\ \hline 0.05 \quad 0.05 \\ \hline x = 200 \end{array}$$

$$x = 200$$

$$u_p = 12$$
$$u_n > u_{n-1} + 11$$

$$\Rightarrow \begin{array}{r} x = x + 11 \\ -x \quad -x \\ \hline 0 = 11 \end{array}$$

will never happen