

Screen Shots/ Answer Key for TI-84

1. Composition Solution:

Plot1	Plot2	Plot3
$Y_1 = .88X$		
$Y_2 = X + 600$		
$Y_3 =$		
$Y_4 =$		
$Y_5 =$		
$Y_6 =$		
$Y_7 =$		
$Y_8 =$		
$Y_9 =$		

7000	7000
$Y_2(Y_1(\text{Ans}))$	6760
$Y_2(Y_1(\text{Ans}))$	6548.8
$Y_2(Y_1(\text{Ans}))$	6362.944

$Y_2(Y_1(\text{Ans}))$	6548.8
$Y_2(Y_1(\text{Ans}))$	6362.944
$Y_2(Y_1(\text{Ans}))$	6199.39072
$Y_2(Y_1(\text{Ans}))$	6055.463834
$Y_2(Y_1(\text{Ans}))$	5928.808174

$Y_2(Y_1(\text{Ans}))$	5000.010637
$Y_2(Y_1(\text{Ans}))$	5000.009362
$Y_2(Y_1(\text{Ans}))$	5000.008239
$Y_2(Y_1(\text{Ans}))$	5000.00725
$Y_2(Y_1(\text{Ans}))$	5000.00638

D) 6760.00 trees; 6362.90 trees; 6055.50 trees E) 5000 trees

1. Recursive Solution- Use Sequence Mode (SEQ):

FUNCTION TYPES
MATHPRINT CLASSIC
NORMAL SCI ENG
FLOAT 0 1 2 3 4 5 6 7 8 9
RADIAN DEGREE
FUNCTION PARAMETRIC POLAR
THICK DOT-THICK THIN DOT-THIN
SEQUENTIAL SIMUL
REAL $a+bi$ $re^{(0i)}$
FULL HORIZONTAL GRAPH-TABLE
FRACTIONTYPE: $\frac{\square}{\square}$ Unvd
ANSWERS: AUTO DEC FRAC-APPROX
GO TO 2ND FORMAT GRAPH: NO YES
STAT DIAGNOSTICS: OFF ON
STAT WIZARDS: ON OFF
SET CLOCK 03/24/16 10:12PM

Plot1	Plot2	Plot3
$n_{\text{Min}}=0$		
$u(n) = .88u(n-1) + 600$		
$u(n_{\text{Min}}) = \{7000\}$		
$v(n) =$		
$v(n_{\text{Min}}) =$		
$w(n) =$		
$w(n_{\text{Min}}) =$		

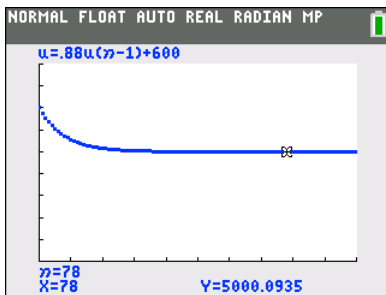
WINDOW
$n_{\text{Min}}=0$
$n_{\text{Max}}=100$
PlotStart=1
PlotStep=1
$X_{\text{min}}=0$
$X_{\text{max}}=100$
$X_{\text{scl}}=10$
$Y_{\text{min}}=0$
$Y_{\text{max}}=9000$

WINDOW
$n_{\text{Max}}=100$
PlotStart=1
PlotStep=1
$X_{\text{min}}=0$
$X_{\text{max}}=100$
$X_{\text{scl}}=10$
$Y_{\text{min}}=0$
$Y_{\text{max}}=9000$
$Y_{\text{scl}}=100$

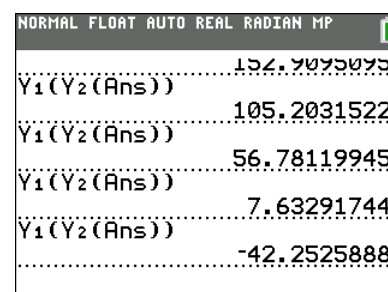
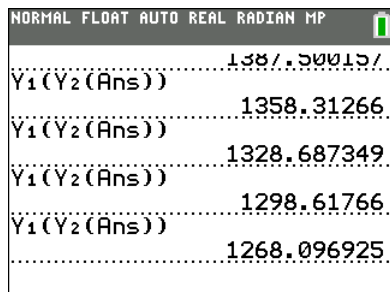
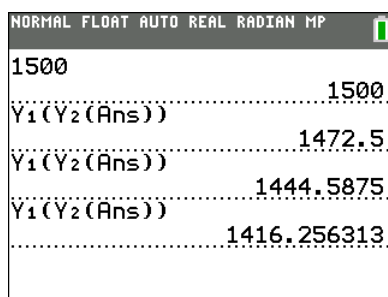
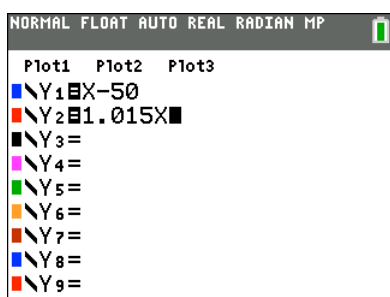
n	$u(n)$
0	7000
1	6760
2	6548.8
3	6362.9
4	6199.4
5	6055.5
6	5928.8
7	5817.4
8	5719.3
9	5633
10	5557

n	$u(n)$
9	5633
10	5557
11	5490.2
12	5431.3
13	5379.6
14	5334
15	5293.9
16	5258.7
17	5227.6
18	5200.3
19	5176.3

n	$u(n)$
70	5000.3
71	5000.2
72	5000.2
73	5000.2
74	5000.2
75	5000.1
76	5000.1
77	5000.1
78	5000.1
79	5000.1
80	5000.1

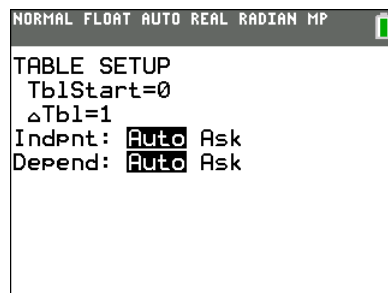
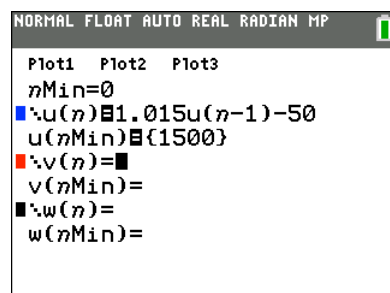


2. Composition Solution:



F) 7 months: \$1298.62 G) 41 months: -\$42.25 H) $40 \times \$50 + \$7.63 = \$2007.64$

2. Recursive Solution:

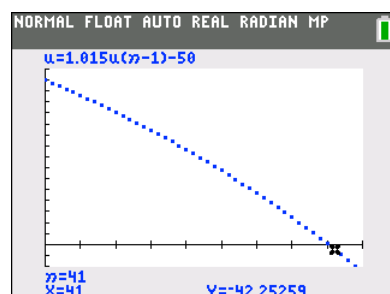
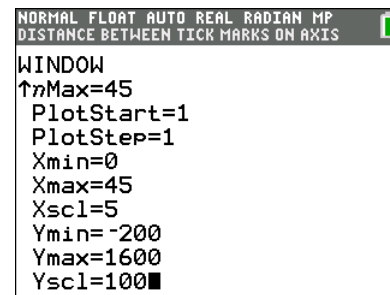
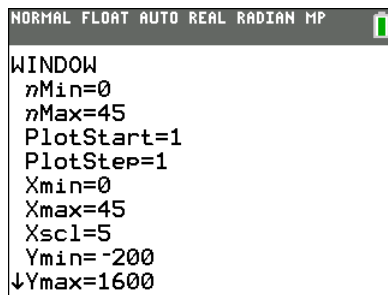


n	u(n)			
0	1500			
1	1472.5			
2	1444.6			
3	1416.3			
4	1387.5			
5	1358.3			
6	1328.7			
7	1298.6			
8	1268.1			
9	1237.1			
10	1205.7			

n=10

n	u(n)			
32	381.07			
33	336.79			
34	291.84			
35	246.22			
36	199.91			
37	152.91			
38	105.2			
39	56.781			
40	7.6329			
41	-42.25			
42	-92.89			

n=42



3. Composition Solution:

Plot1	Plot2	Plot3
$Y_1 = 0.5X$		
$Y_2 = X + 200$		
$Y_3 =$		
$Y_4 =$		
$Y_5 =$		
$Y_6 =$		
$Y_7 =$		
$Y_8 =$		
$Y_9 =$		

800	
$Y_2(Y_1(\text{Ans}))$	800
$Y_2(Y_1(\text{Ans}))$	600
$Y_2(Y_1(\text{Ans}))$	500
$Y_2(Y_1(\text{Ans}))$	450

$Y_2(Y_1(\text{Ans}))$	450
$Y_2(Y_1(\text{Ans}))$	425
$Y_2(Y_1(\text{Ans}))$	412.5
$Y_2(Y_1(\text{Ans}))$	406.25
$Y_2(Y_1(\text{Ans}))$	403.125

$Y_2(Y_1(\text{Ans}))$	400.1733125
$Y_2(Y_1(\text{Ans}))$	400.0976563
$Y_2(Y_1(\text{Ans}))$	400.0488281
$Y_2(Y_1(\text{Ans}))$	400.0244141
$Y_2(Y_1(\text{Ans}))$	400.012207

D. 600 mg. ; 412.5 mg. ; 400.02 mg. E. After 23 days there will be .7812 mg. F. 400 mg. G. 400 mg.

3. Recursive Solution:

Plot1	Plot2	Plot3
$n_{\text{Min}}=0$		
$u(n) = .5u(n-1) + 200(n \leq 14)$		
$u(n_{\text{Min}}) = 800$		
$v(n) =$		
$v(n_{\text{Min}}) =$		
$w(n) =$		
$w(n_{\text{Min}}) =$		

TABLE SETUP
TblStart=0
$\Delta \text{Tbl}=1$
Indnt: Auto Ask
Depend: Auto Ask

n	$u(n)$			
0	800			
1	600			
2	500			
3	450			
4	425			
5	412.5			
6	406.25			
7	403.13			
8	401.56			
9	400.78			
10	400.39			

$n=10$

n	$u(n)$			
10	400.39			
11	400.2			
12	400.1			
13	400.05			
14	400.02			
15	400.01			
16	200.01			
17	100			
18	50.002			
19	25.001			
20	12.5			

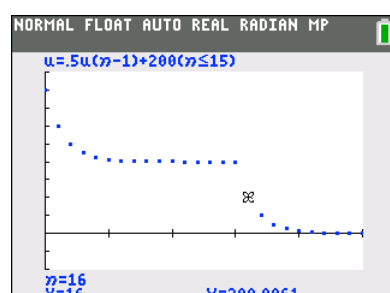
$n=20$

n	$u(n)$			
16	200.01			
17	100			
18	50.002			
19	25.001			
20	12.5			
21	6.2502			
22	3.1251			
23	1.5625			
24	.78127			
25	.39064			
26	.19532			

$n=26$

WINDOW
$n_{\text{Min}}=0$
$n_{\text{Max}}=25$
PlotStart=1
PlotStep=1
$X_{\text{min}}=0$
$X_{\text{max}}=25$
$X_{\text{sc1}}=5$
$Y_{\text{min}}=-200$
$Y_{\text{max}}=900$

WINDOW
$\uparrow n_{\text{Max}}=25$
PlotStart=1
PlotStep=1
$X_{\text{min}}=0$
$X_{\text{max}}=25$
$X_{\text{sc1}}=5$
$Y_{\text{min}}=-200$
$Y_{\text{max}}=900$
$Y_{\text{sc1}}=100$



4. Composition Solution:

Plot1	Plot2	Plot3
$Y_1 = 0.85X$		
$Y_2 = X + 45$		
$Y_3 =$		
$Y_4 =$		
$Y_5 =$		
$Y_6 =$		
$Y_7 =$		
$Y_8 =$		
$Y_9 =$		

450	450
$Y_2(Y_1(\text{Ans}))$	427.5
$Y_2(Y_1(\text{Ans}))$	408.375
$Y_2(Y_1(\text{Ans}))$	392.11875

$Y_2(Y_1(\text{Ans}))$	374.11875
$Y_2(Y_1(\text{Ans}))$	378.3009375
$Y_2(Y_1(\text{Ans}))$	366.5557969
$Y_2(Y_1(\text{Ans}))$	356.5724273
$Y_2(Y_1(\text{Ans}))$	348.0865632

$Y_2(Y_1(\text{Ans}))$	300.001176
$Y_2(Y_1(\text{Ans}))$	300.0014616
$Y_2(Y_1(\text{Ans}))$	300.0012424
$Y_2(Y_1(\text{Ans}))$	300.001056
$Y_2(Y_1(\text{Ans}))$	300.0008976

D) 427.50 mg.; 392.11 mg. ; 329.53 mg. E) 300 mg.

4. Recursive Solution:

Plot1	Plot2	Plot3
$n_{\text{Min}}=0$		
$u(n) = 0.85u(n-1) + 45$		
$u(n_{\text{Min}}) = \{450\}$		
$v(n) =$		
$v(n_{\text{Min}}) =$		
$w(n) =$		
$w(n_{\text{Min}}) =$		

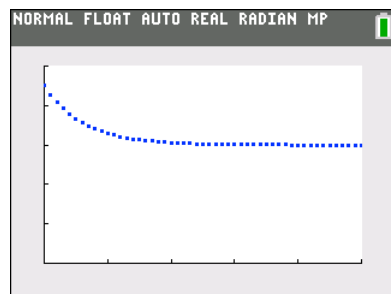
TABLE SETUP	
TblStart=0	
$\Delta \text{Tbl}=1$	
Indent: Auto	Ask
Depend: Auto	Ask

n	$u(n)$			
0	450			
1	427.5			
2	408.38			
3	392.12			
4	378.3			
5	366.56			
6	356.57			
7	348.09			
8	340.87			
9	334.74			
10	329.53			

n	$u(n)$			
40	300.23			
41	300.19			
42	300.16			
43	300.14			
44	300.12			
45	300.1			
46	300.08			
47	300.07			
48	300.06			
49	300.05			
50	300.04			

WINDOW	
$n_{\text{Min}}=0$	
$n_{\text{Max}}=50$	
PlotStart=1	
PlotStep=1	
Xmin=0	
Xmax=50	
Xscl=10	
Ymin=0	
Ymax=500	

WINDOW	
$n_{\text{Max}}=50$	
PlotStart=1	
PlotStep=1	
Xmin=0	
Xmax=50	
Xscl=10	
Ymin=0	
Ymax=500	
Yscl=100	



5. Composition Solution:

NORMAL FLOAT AUTO REAL RADIAN MP

Plot1	Plot2	Plot3
$Y_1 = 1.003X - 300$		
$Y_2 =$		
$Y_3 =$		
$Y_4 =$		
$Y_5 =$		
$Y_6 =$		
$Y_7 =$		
$Y_8 =$		
$Y_9 =$		

NORMAL FLOAT AUTO REAL RADIAN MP

12000	
$Y_1(\text{Ans})$	12000
$Y_1(\text{Ans})$	11736
$Y_1(\text{Ans})$	11471.208
$Y_1(\text{Ans})$	11205.62162

NORMAL FLOAT AUTO REAL RADIAN MP

$Y_1(\text{Ans})$	7865.670444
$Y_1(\text{Ans})$	9595.287515
$Y_1(\text{Ans})$	9324.073378
$Y_1(\text{Ans})$	9052.045598
$Y_1(\text{Ans})$	8779.201735

12 month balance

NORMAL FLOAT AUTO REAL RADIAN MP

$Y_1(\text{Ans})$	-397.6710607
$Y_1(\text{Ans})$	-698.8841338
$Y_1(\text{Ans})$	-1000.980786
$Y_1(\text{Ans})$	-1303.983729
$Y_1(\text{Ans})$	-1607.89568

4 year balance is -\$1607.90 (not enough money)

5. Recursive Solution:

NORMAL FLOAT AUTO REAL RADIAN MP

Plot1	Plot2	Plot3
$nMin=0$		
$u(n) = 1.003u(n-1) - 300$		
$u(nMin) = 12000$		
$v(n) =$		
$v(nMin) =$		
$w(n) =$		
$w(nMin) =$		

NORMAL FLOAT AUTO REAL RADIAN MP

TABLE SETUP
TblStart=0
ΔTbl=1
Indent: Auto Ask
Depend: Auto Ask

NORMAL FLOAT AUTO REAL RADIAN MP
PRESS + FOR ΔTbl

n	u(n)			
0	12000			
1	11736			
2	11471			
3	11206			
4	10939			
5	10672			
6	10404			
7	10135			
8	9865.7			
9	9595.3			
10	9324.1			

n=10

NORMAL FLOAT AUTO REAL RADIAN MP
PRESS + FOR ΔTbl

n	u(n)			
40	798.1			
41	500.49			
42	202			
43	-97.4			
44	-397.7			
45	-698.9			
46	-1001			
47	-1304			
48	-1608			
49	-1913			
50	-2218			

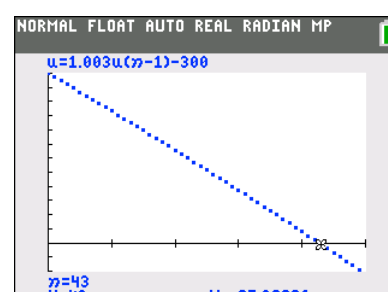
n=50

NORMAL FLOAT AUTO REAL RADIAN MP

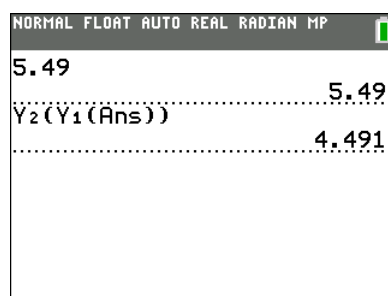
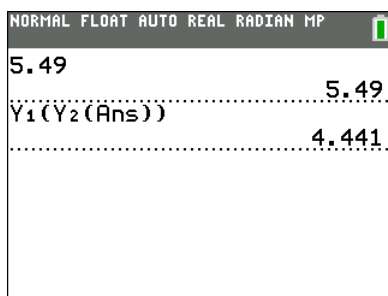
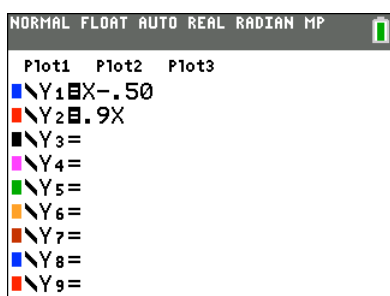
WINDOW
nMin=0
nMax=50
PlotStart=1
PlotStep=1
Xmin=0
Xmax=50
Xscl=10
Ymin=-2000
Ymax=12000

NORMAL FLOAT AUTO REAL RADIAN MP
DISTANCE BETWEEN TICK MARKS ON AXIS

WINDOW
nMax=50
PlotStart=1
PlotStep=1
Xmin=0
Xmax=50
Xscl=10
Ymin=-2000
Ymax=12000
Yscl=1000



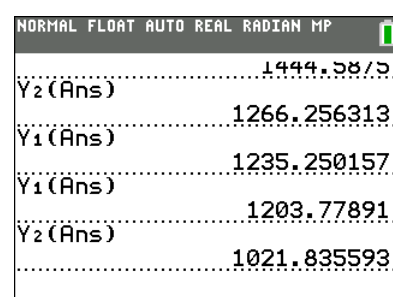
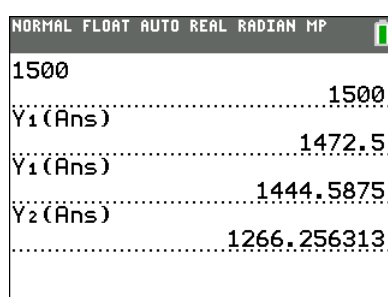
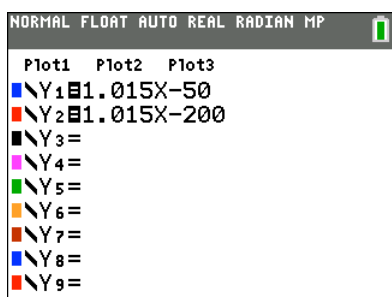
6. Composition Solution:



Priya's Server

Jen's Server

7. Composition Solution:



Month	Pay Amt	Formula	Balance
0	-	-	1500
1	50	Y1(ans)	1472.5
2	50	Y1(ans)	1444.59
3	200	Y2(ans)	1266.26
4	50	Y1(ans)	1235.25
5	50	Y1(ans)	1203.78
6	200	Y2(ans)	1021.84
7	50	Y1(ans)	987.17
8	50	Y1(ans)	951.98
9	200	Y2(ans)	766.26
10	50	Y1(ans)	727.74
11	50	Y1(ans)	688.66
12	200	Y2(ans)	498.99
13	50	Y1(ans)	456.47
14	50	Y1(ans)	413.32
15	200	Y2(ans)	219.52
16	50	Y1(ans)	172.81
17	50	Y1(ans)	125.41
18	200	Y2(ans)	-72.71

E. At 7 months balance is \$987.17 F. Balance paid at 18 months.

7. Recursive Solution:

Use this function: $\left(\left(\text{Int} \frac{n}{3}\right) = \frac{n}{3}\right) \times (1.015a_n - 200) + \left(\left(\text{Int} \frac{n}{3}\right) \neq \frac{n}{3}\right) \times (1.015a_n - 50)$

Classic

```
NORMAL FLOAT AUTO REAL RADIAN CL
Plot1 Plot2 Plot3
nMin=0
u(n)≡((int(n/3))=(n/3))
)*(1.015*u(n-1)-200)+((int
t((n)/3))≠(n/3))*(1.015*u
(n-1)-50)
u(nMin)≡{1500}
v(n)=
v(nMin)=
w(n)=
```

Note the value of nMin=0.

Math Print

```
NORMAL FLOAT AUTO REAL RADIAN MP
Plot1 Plot2 Plot3
nMin=0
u(n)≡(((int(n/3))=n/3))*(1.
u(nMin)≡{1500}
v(n)=
v(nMin)=
w(n)=
w(nMin)=
```

```
NORMAL FLOAT AUTO REAL RADIAN MP
Plot1 Plot2 Plot3
nMin=0
u(n)≡(1.015*u(n-1)-200)
u(nMin)≡{1500}
v(n)=
v(nMin)=
w(n)=
w(nMin)=
```

```
NORMAL FLOAT AUTO REAL RADIAN MP
Plot1 Plot2 Plot3
nMin=0
u(n)≡0+(((int(n/3))≠n/3))
u(nMin)≡{1500}
v(n)=
v(nMin)=
w(n)=
w(nMin)=
```

```
NORMAL FLOAT AUTO REAL RADIAN MP
Plot1 Plot2 Plot3
nMin=0
u(n)≡(n/3))*(1.015*u(n-1)
u(nMin)≡{1500}
v(n)=
v(nMin)=
w(n)=
w(nMin)=
```

```
NORMAL FLOAT AUTO REAL RADIAN MP
Plot1 Plot2 Plot3
nMin=0
u(n)≡(1.015*u(n-1)-50)
u(nMin)≡{1500}
v(n)=
v(nMin)=
w(n)=
w(nMin)=
```

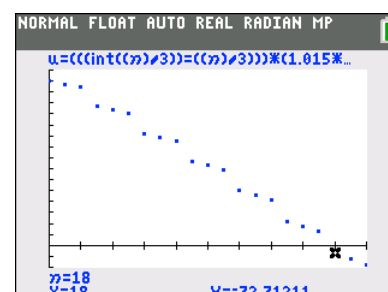
```
TABLE SETUP
TblStart=0
ΔTbl=1
Indent: Auto Ask
Depend: Auto Ask
```

n	u(n)			
0	1500			
1	1472.5			
2	1444.6			
3	1266.3			
4	1235.3			
5	1203.8			
6	1021.8			
7	987.16			
8	951.97			
9	766.25			
10	727.74			

n=10

n	u(n)			
8	951.97			
9	766.25			
10	727.74			
11	688.66			
12	498.99			
13	456.47			
14	413.32			
15	219.52			
16	172.81			
17	125.41			
18	-72.71			

n=18



NORMAL FLOAT AUTO REAL RADIAN MP

WINDOW

nMin=0
 nMax=20
 PlotStart=1
 PlotStep=1
 Xmin=0
 Xmax=20
 Xscl=2
 Ymin=-200
 Ymax=1600

NORMAL FLOAT AUTO REAL RADIAN MP

DISTANCE BETWEEN TICK MARKS ON AXIS

WINDOW

nMax=20
 PlotStart=1
 PlotStep=1
 Xmin=0
 Xmax=20
 Xscl=2
 Ymin=-200
 Ymax=1600
 Yscl=100

8. Composition Solution:

NORMAL FLOAT AUTO REAL RADIAN MP

Plot1 Plot2 Plot3

Y1=1.015X-50
 Y2=1.015X-250
 Y3=
 Y4=
 Y5=
 Y6=
 Y7=
 Y8=
 Y9=

NORMAL FLOAT AUTO REAL RADIAN MP

1500

Y1(Ans) 1500
 Y1(Ans) 1472.5
 Y2(Ans) 1444.5875
 Y2(Ans) 1216.256313

NORMAL FLOAT AUTO REAL RADIAN MP

Y2(Ans) 1444.5875
 Y1(Ans) 1216.256313
 Y1(Ans) 1184.500157
 Y1(Ans) 1152.26766
 Y2(Ans) 919.5516744

Month	Pay Amt	Formula	Balance
0	-	-	1500
1	50	Y1(ans)	1472.5
2	50	Y1(ans)	1444.59
3	250	Y2(ans)	1216.26
4	50	Y1(ans)	1184.5
5	50	Y1(ans)	1152.27
6	250	Y2(ans)	919.55
7	50	Y1(ans)	883.34
8	50	Y1(ans)	846.6
9	250	Y2(ans)	609.29
10	50	Y1(ans)	568.43
11	50	Y1(ans)	526.96
12	250	Y2(ans)	284.86
13	50	Y1(ans)	239.14
14	50	Y1(ans)	192.72
15	250	Y2(ans)	-54.39

8. Recursive Solution:

Use this function:

$$\left(\left(\text{Int} \frac{n}{3} = \frac{n}{3} \right) \times (1.015a_n - 250) + \left(\left(\text{Int} \frac{n}{3} \neq \frac{n}{3} \right) \times (1.015a_n - 50) \right)$$

Classic

NORMAL FLOAT AUTO REAL RADIANT CL

Plot1 Plot2 Plot3
 $n_{\text{Min}}=0$
 $u(n) \left[\left(\left(\text{int}\left(\frac{n}{3}\right) \right) = \left(\frac{n}{3}\right) \right) * (1.015 * u(n-1) - 250) + \left(\left(\text{int}\left(\frac{n}{3}\right) \right) \neq \left(\frac{n}{3}\right) \right) * (1.015 * u(n-1) - 50) \right]$
 $u(n_{\text{Min}}) \left[1500 \right]$
 $v(n) =$
 $v(n_{\text{Min}}) =$
 $w(n) =$

Math Print

NORMAL FLOAT AUTO REAL RADIANT MP

Plot1 Plot2 Plot3
 $n_{\text{Min}}=0$
 $u(n) \left[\left(\left(\text{int}\left(\frac{n}{3}\right) \right) = \frac{n}{3} \right) * (1.015 * u(n-1) - 250) + \left(\left(\text{int}\left(\frac{n}{3}\right) \right) \neq \frac{n}{3} \right) * (1.015 * u(n-1) - 50) \right]$
 $u(n_{\text{Min}}) \left[1500 \right]$
 $v(n) =$
 $v(n_{\text{Min}}) =$
 $w(n) =$
 $w(n_{\text{Min}}) =$

NORMAL FLOAT AUTO REAL RADIANT MP

Plot1 Plot2 Plot3
 $n_{\text{Min}}=0$
 $u(n) \left[(1.015 * u(n-1) - 250) \right]$
 $u(n_{\text{Min}}) \left[1500 \right]$
 $v(n) =$
 $v(n_{\text{Min}}) =$
 $w(n) =$
 $w(n_{\text{Min}}) =$

NORMAL FLOAT AUTO REAL RADIANT MP

Plot1 Plot2 Plot3
 $n_{\text{Min}}=0$
 $u(n) \left[50 + \left(\left(\text{int}\left(\frac{n}{3}\right) \right) \neq \frac{n}{3} \right) * \frac{n}{3} \right]$
 $u(n_{\text{Min}}) \left[1500 \right]$
 $v(n) =$
 $v(n_{\text{Min}}) =$
 $w(n) =$
 $w(n_{\text{Min}}) =$

NORMAL FLOAT AUTO REAL RADIANT MP

Plot1 Plot2 Plot3
 $n_{\text{Min}}=0$
 $u(n) \left[\frac{n}{3} \right] * (1.015 * u(n-1) - 50)$
 $u(n_{\text{Min}}) \left[1500 \right]$
 $v(n) =$
 $v(n_{\text{Min}}) =$
 $w(n) =$
 $w(n_{\text{Min}}) =$

NORMAL FLOAT AUTO REAL RADIANT MP

Plot1 Plot2 Plot3
 $n_{\text{Min}}=0$
 $u(n) \left[(1.015 * u(n-1) - 50) \right]$
 $u(n_{\text{Min}}) \left[1500 \right]$
 $v(n) =$
 $v(n_{\text{Min}}) =$
 $w(n) =$
 $w(n_{\text{Min}}) =$

NORMAL FLOAT AUTO REAL RADIANT MP

TABLE SETUP
 TblStart=0
 $\Delta \text{Tbl}=1$
 Indent: **Auto** Ask
 Depend: **Auto** Ask

NORMAL FLOAT AUTO REAL RADIANT CL
 PRESS + FOR ΔTbl

n	$u(n)$				
0	1500				
1	1472.5				
2	1444.6				
3	1216.3				
4	1184.5				
5	1152.3				
6	919.55				
7	883.34				
8	846.6				
9	609.29				
10	568.43				

$n=10$

NORMAL FLOAT AUTO REAL RADIANT CL
 PRESS + FOR ΔTbl

n	$u(n)$				
5	1152.3				
6	919.55				
7	883.34				
8	846.6				
9	609.29				
10	568.43				
11	526.96				
12	284.86				
13	239.14				
14	192.72				
15	-54.38				

$n=$

NORMAL FLOAT AUTO REAL RADIANT MP

WINDOW
 $n_{\text{Min}}=0$
 $n_{\text{Max}}=20$
 PlotStart=1
 PlotStep=1
 $X_{\text{min}}=0$
 $X_{\text{max}}=20$
 $X_{\text{sc1}}=2$
 $Y_{\text{min}}=-200$
 $\downarrow Y_{\text{max}}=1600$

NORMAL FLOAT AUTO REAL RADIANT MP
 DISTANCE BETWEEN TICK MARKS ON AXIS

WINDOW
 $\uparrow n_{\text{Max}}=20$
 PlotStart=1
 PlotStep=1
 $X_{\text{min}}=0$
 $X_{\text{max}}=20$
 $X_{\text{sc1}}=2$
 $Y_{\text{min}}=-200$
 $Y_{\text{max}}=1600$
 $Y_{\text{sc1}}=100$

