

Before starting this activity, you will need the latest version (v3 or higher) of the small, free program **RepayII**, from charliewatson.com/classpad

From the Program app, select the program **RepayII** and tap the play button.

Use the first screen to check your program is at least v3 or higher.

A loan of \$4000, with an interest rate of 15% pa compounded monthly, is repaid with monthly repayments of \$180. How many complete months will it take to repay the loan and how much interest will be paid in total?

Enter the required values, tapping OK each time.

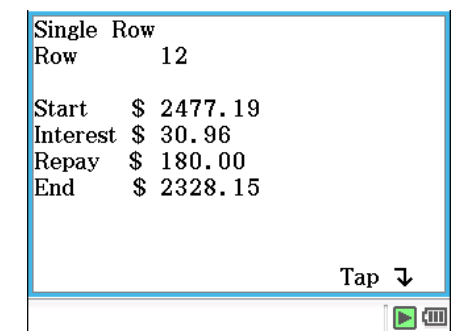
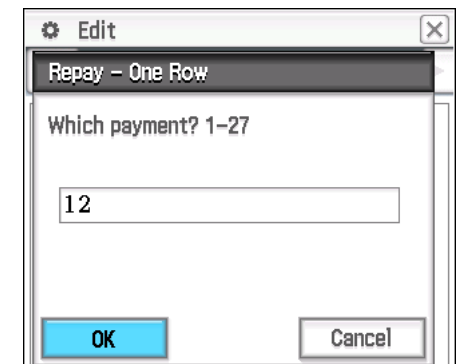
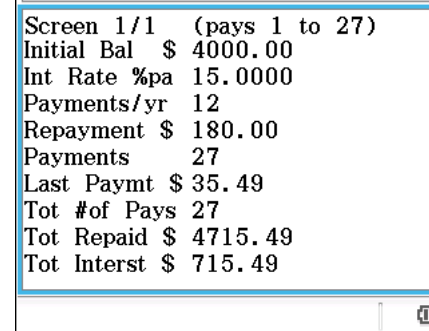
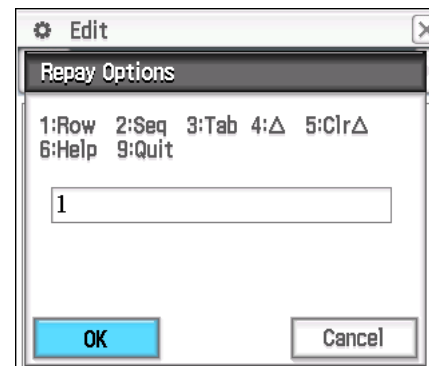
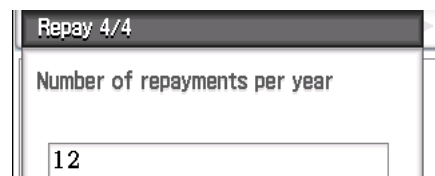
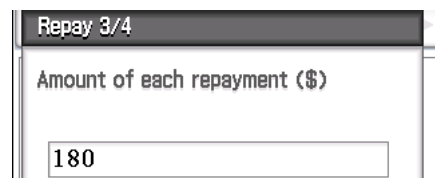
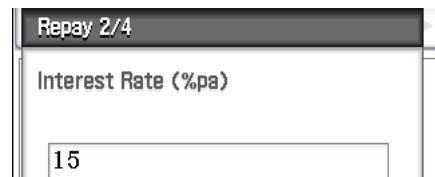
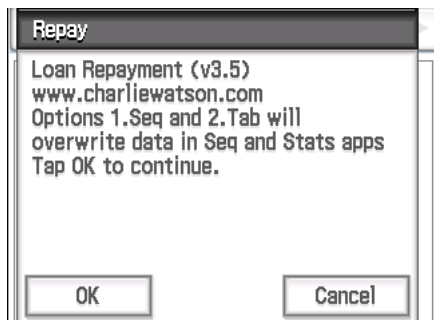
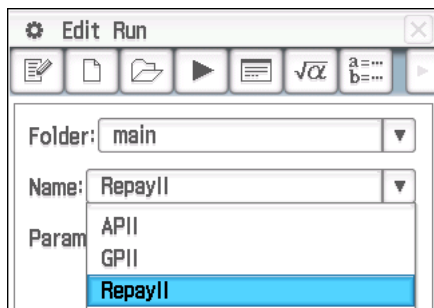
The program displays summary information about the loan to answer the first two questions (27 months and \$715.49) and some other options.

How much is still owed after 12 months?

Enter 1 to select Row option and tap OK.

Enter 12 for the row number and tap OK to see the calculations for that row - \$2328.15 is still owing after 12 months.

Tap the play button that appears next to the battery icon to continue.



How long until the loan first falls below \$1000?

Enter 2 to select Seq option and tap OK.

The program sets up and opens the Sequence app. Note the recursive rule is displayed if required. Scroll down to determine the required solution is at the start of month 22 (or end of month 21).

Option 3 (Tab) opens the Statistics app to display the progress of the loan as a table, rounding all values to 2 decimal places.

After 12 months the loan interest rate reduces from 15% to 6%. Determine the reduction in total interest payable.

Choose option 4:Δ and then 1:Rate. Make the change after payment 12 and next set the new rate to 6%. Screen 1/2 shows the loan info for pays 1 to 12 and screen 2/2 shows the loan info for pays 13 to 26 and totals.

Note that multiple changes can be made - just make sure they are set in time order.

Option 5:ClrΔ will erase all changes - useful if you want to compare several one-off changes. 6:Help shows brief hints and 9:Quit exits the program in a tidy manner. You can also tap Menu at any stage to quit the program.

$a_{n+1} = 1.0125 \times a_n - 180$

n	a_n	b_n
19	1394.0	17.425
20	1231.4	15.393
21	1066.8	13.335
22	900.15	11.252
23	731.40	9.1425
24	560.54	7.0068

900.14795010862

Sequence

$a_{n+1} = 1.0125 \times a_n - 180, a_1 = 4000$

Blue a_n shows balance
Red b_n shows interest

12 payments per year

Tap ↓

Rad Real

	list1	list2	list3
1	4000	50	180
2	3870	48.38	180
3	3738.4	46.73	180
4	3605.1	45.06	180
5	3470.2	43.38	180
6	3333.6	41.67	180

Cal▶

[1] = 4000

For calculated rows:

Tot Repaid 4715.49
Tot Interest 715.49

12 payments per year

Tap ↓

Rad Auto Decimal

Screen 1/2 (pays 1 to 12)

Initial Bal \$ 4000.00
Int Rate %pa 15.0000
Payments/yr 12
Repayment \$ 180.00
Payments 12
New Bal \$ 2328.15

Tap ↓

Screen 2/2 (pays 13 to 26)

Initial Bal \$ 2328.15
Int Rate %pa 6.0000
Payments/yr 12
Repayment \$ 180.00
Payments 14
Last Paymt \$ 72.96
Tot #of Pays 26
Tot Repaid \$ 4572.96
Tot Interst \$ 572.96

Tap ↓

Clear All Changes

Clear All Changes? 1:Confirm 2:Cancel

1:Row: See one row of loan
2:Seq: Solve in Sequence
3:Tab: Create table in Stats
4:Change: Alter loan values

Tap ↓