

While real estate transactions seem to be growing more complex, two simple programs help the buyer and seller evaluate their financial positions

Tackling the Real Estate Market With a Pocket Computer

by Steven M. Zimmerman and Leo M. Conrad

The Radio Shack TRS-80 pocket computers can be a valuable asset to real estate buyer or seller. From calculating percentage rates to studying wrap-around mortgages, the following two programs can simplify many of the complexities found in the real estate market today.

How points affect annual percentage rates

The annual percentage rate concept was created by the government to give the borrower a measurement to aid in the comparison of different types of loans. Points are some percentage of the value of a loan which is paid at the beginning of the loan, for one reason or another. In theory, the seller pays the points. In practice, it doesn't matter who actually pays the dollars. The price of the house must go up with the addition of points, and it goes down as points are decreased.

A single point represents 1% of the mortgage value. For example, for a mortgage of \$52,000, one point means \$520 will be paid to the mortgage holder at the time the mortgage is issued. Two points represent a payment of \$1,040, and so on. The important thing to notice is that the points represent cash flow at the time the mortgage is issued. A point, in effect, is similar to a loan from which the interest is discounted.

The key question is what effect does this practice have on the annual percentage rate actually being paid for the loan? This program is designed to answer this question.

The SHFT and SPC keys may be used to start the program in the DEF MODE. Alternately typing RUN and hitting ENTER may be used in the RUN MODE. If you have a printer with your computer, now is the time to make sure it is turned on. All output information will automatically print out. The title of

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1: " "PAUSE "LOAN WITH POINTS": INPUT "POINTS "; P: P=.01P:
      INPUT "LOAN"; L
2: INPUT "YEARS "; Y: INPUT "ANNUAL % "; A: Y=12Y: A=.01A/12
3: R=L*((A*(1+A)^Y)/((1+A)^Y-1)): USING "#####.##":
      PRINT "PAYMENT "; R
10: FOR C=1 TO 100: B=A+.0001C
      X=(1-P)*L*((B*(1+B)^Y)/((1+B)^Y-1)): IF X>R THEN 20
11: NEXT C: PRINT "BEYOND SCOPE": END
20: BEEP 3: B=1200B: PRINT "APR "; B: "%": GOTO 1
99: END

NOTE: [ MEANS TO RAISE TO A POWER
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Program Listing

the program will appear for a short period of time:

LOAN WITH POINTS

After this, the program asks for the amount of points to be paid:

POINTS

Assume for this sample run that you have to pay eight points. This is high, but not unheard of in today's real estate market. The next question is relative to the amount of the loan:

LOAN

Let's say it's a loan of \$50,000. Input 50000 and hit the ENTER key. The next question will be relative to the number of years over which the loan will have to be repaid:

YEARS

Answer this question with a 30. for 30-year loan, and hit enter

ANNUAL %

Assume the stated percentage rate is 15%. Type 15 and hit the ENTER key. There will be a short delay while the computer calculates the monthly payments. This value will be printed out:

PAYMENT — 632.22

Hit ENTER after you have read this value and record it if you wish. Now expect a little longer delay while the

computer searches for the annual percentage rate. When it is finished searching, the computer will beep two times and print the results on the display:

APR 16.44%

This means a \$50,000 loan with a stated percentage rate of 15% and eight points is in reality a 16.44% loan.

This program is of value to the real estate buyer and seller in the evaluation of different loans. It is interesting to examine the exact effect of points in a mortgage loan.

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1. PAUSE "WRAP-AROUND MORTG. ":PAUSE "MATCHED PERIODS ONLY"
2. INPUT "SELL PRICE ";S:INPUT "% DOWN ";D
3. INPUT "OLD BALANCE ";B:INPUT "OLD % ";O:INPUT "NEW %";Q
   INPUT "PERIODS LEFT ";Y
4. PRINT "SELL ";S:PRINT "% DN ";D:"%":PRINT "OLD BAL ";B
   PRINT "OLD ";O:"%"
5. PRINT "PER ";Y:PRINT "NEW ";Q:"%":O=.010/12
6. Q=.010/12:L=B:A=0:GOSUB 9:GOSUB 12:M=-R:A=-Q:L=-S-.010*S
   GOSUB 9:GOSUB 12:GOTO 10
9. R=L*((A*(1+A)^Y)/((1+A)^Y-1)):W=R:GOSUB 20:R=W:RETURN
10.M=R-M:L=L-B:FOR I=1TO 100:A=.0011+Q:GOSUB 9
   IF M<R THEN 14
11:PAUSE R;" ";M:NEXT I:BEEP 9:PRINT "BEYOND SCOPE"
   PRINT A:END
12:PRINT "PAYMENT ";R:RETURN
13:BEEP 3:A=1200A:PRINT "RATE ";A:"%":GOTO 1
14:B=A-.001:FOR J=1TO 100:A=.0001J+B:GOSUB 9
   IF M<R THEN 13
15:PAUSE R;" ";M:NEXT J
20.Z=INT (100W):X=W-.01Z:W=.01Z:IF X>.005LET W=W+.01
21:RETURN
Note:Be very careful 0 is a number and O is a letter

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Program listing

Is the wrap-around mortgage for you?

The real estate market depends upon the availability of mortgage money. If you want to sell a house and your buyer can't obtain mortgage money, it may be necessary to do your own financing. This program studies the wrap-around mortgage, how it works, and what type of interest rate or return you earn on the cash or credit you are lending.

In a wrap-around mortgage you earn interest on the credit you advance and on the credit the original lender still owes. The net result is that you earn a high rate of return if you consider only the money you have outstanding.

The variety of potential financing plans possible can make this problem very difficult. For those with a large microcomputer, it is of value to have a program which can handle the many alternatives. For the pocket computer user, the program gives a first approximation only. This program can analyze a wrap-around mortgage where the life of the new loan is matched to the original loan. This is an often-occurring special case which is a good starting point for negotiations.

If you have a printer with your computer, now is the time to turn it on. If you have the printer, all printouts will be done automatically. If not, then you will need to record the information as it appears on the display:

WRAP AROUND MORTG.
MATCHED PERIODS ONLY
SELL PRICE —

Answer this question with the selling price of the home or other real estate being sold. In this example, assume the price was \$50,000. Type 50000 and hit ENTER. You will now see:

% DOWN —

If the percentage of the down payment is to be 20%, type 20 and hit ENTER. This is the value used in the example. You will now see:

OLD BALANCE

The old balance is expected to be less than the selling price of the house. In the example, \$20,000 or 20000 was used.

Note: The program has no error-checking procedures built in. Be careful if you make an error in data input—you will get strange results.

OLD % —

The old annual percentage rate must be known. In the recent past, 8% was not an unusual interest rate. This value was used in the example. Type 8 and hit ENTER.

PERIODS LEFT —

There are two choices for inputting the amount of time remaining to pay off the original loan. One option is in years remaining. The other option is in periods or months. The option of using months is used here. Assume 120 months or 10 years remain in the life of the first mortgage. Type 120 and hit ENTER.

% NEW —

The interest rate obtained on the wrap-around mortgage must be specified. Assume 12% was used in the example. Type 12 and hit ENTER.

PAYMENT 242.65

If you do not have a printer, hit ENTER after you have looked at or recorded this value. It is the monthly payment for the original mortgage.

PAYMENT 573.88

The value you now see is the new payment on the wrap-around mortgage. It is a lot greater than the original payment. It is best that the discussion of this fact be left until some other time.

As you can see by the printout (if you have used a printer), we not only print the results or final answers, but we also print out the input, so as to record the whole transaction in print.

You will now see a series of numbers flashed on the display as the computer searches for the interest rate. The

number on the right is the difference between the two values above. The number on the left is the value being calculated. Next, a new level search procedure is used. The value is calculated to the nearest .0001 or .01% per month (a yearly error of .12%).

As the interest search takes a few moments, don't think your computer is out of commission. The flashing figures on the display show that it's working. Finally you will hear three beeps and the whirr of the printer motor (if you have one), which will tell you the end is near. You should get the figure:

RATE 21.08%

This represents the interest rate being received by the person granting the wrap-around mortgage.

The wrap-around is an important factor in the real estate market today. This program allows both the buyer and the seller to study the significance of this concept. □

Steven Zimmerman is a professor of management at the University of South Alabama. Leo Conrad is the president of Imagineering Concepts, a computer systems, business management, and public relations consulting firm. The two have authored more than 50 magazine articles and five books on computers during the past two years. They presently have contracts for 11 more books with a major computer publishing company.