Analyzing the Effect of Principal Payments

There are three important numbers connected with any home mortgage: market value, principal balance, and equity.

- **Market value** is the amount that the home could sell for.
- **Principal balance** is the amount owed on the mortgage.
- **Equity** is the difference between the market value and the principal balance.

$$\boxed{\text{Equity}} = \boxed{\text{Market value}} - \boxed{\text{Principal balance}}$$

Each month, after paying the interest, each dollar in your payment goes toward decreasing your principal balance and increasing your equity. Even small additional "principal payments" (payments above the normal monthly payment) can have dramatic effects in the overall amount of interest you pay throughout the term of the mortgage.

EXAMPLE 3 Analyzing the Effect of Principal Payments

You take out a home mortgage for $250,000 for 30 years at 6%. Each month, you make the regular payment of $1498.88 plus an additional $50. (a) How much sooner do you pay off the mortgage? (b) How much do you save in interest?

SOLUTION

DATA

a. Use a spreadsheet to create an amortization table.

	A	B	C	D	E	F
1	Payment Number	Balance before Payment	Interest on Balance	Monthly Payment	Extra Payment	Balance after Payment
2	1	$250,000.00	$1,250.00	$1,498.88	$50.00	$249,701.12
3	2	$249,701.12	$1,248.51	$1,498.88	$50.00	$249,400.75
4	3	$249,400.75	$1,247.00	$1,498.88	$50.00	$249,098.88
5	4	$249,098.88	$1,245.49	$1,498.88	$50.00	$248,795.50
6	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
328	327	$5,926.39	$29.63	$1,498.88	$50.00	$4,407.15
329	328	$4,407.15	$22.04	$1,498.88	$50.00	$2,880.31
330	329	$2,880.31	$14.40	$1,498.88	$50.00	$1,345.83
331	330	$1,345.83	$6.73	$1,352.56	$0.00	$0.00
332	Total			$494,482.87	$16,450.00	
333						

Instead of taking 360 months, it takes only 330 months, which is 2.5 years sooner.

b. Instead of your payments totaling $539,596.80 [see Example 1(b)], your payments total 494,482.87 + 16,450.00 = $510,932.87, which is a savings of $28,663.93. All of this savings represents interest that you do not have to pay.

Study Tip

Some mortgages do not allow the homeowner to make extra principal payments. Before signing a mortgage contract, make sure the contract allows you to make extra payments whenever you want.

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In Example 3, suppose that each month you make the regular payment plus an additional $100. (c) How much sooner do you pay off the mortgage? (d) How much do you save in interest?