

Applications

TEACH

Exercises 2, 3, and 4

These exercises should be assigned together. In the first two, students find the prepaid interest. Using these two exercises as a guide, students can then convert the steps into formulas for the spreadsheet in Exercise 4.

Owning a home is a keystone of wealth . . . both financial affluence and emotional security.

—Suze Orman, author, TV personality, and personal finance expert

	A	B
1	Enter the loan amount.	
3	Enter the day of the month for closing.	
5	Enter number of days in month.	
7	Enter the APR for the loan.	
9	Interest due for one year.	
10	Daily interest due.	
11	Interest due from closing date until the end of the month.	

1. Explain how the quote can be interpreted. *See margin.*
2. Del is buying a \$250,000 home. He has been approved for a 3.75% mortgage. He was required to make a 15% down payment and will be closing on the house on July 15. His first mortgage payment is due on August 1. How much should he expect to pay in prepaid interest at the closing? **\$349.28**
3. Keisha is purchasing an apartment for \$180,000. She has been approved for a 4.0% mortgage. She put 10% down and will be closing on April 22. Her first payment is due May 1. How much should she expect to pay in prepaid interest? **\$142**

4. This spreadsheet can be used to calculate the amount of prepaid interest a buyer will need to pay at the closing. Write formulas for cells B9, B10, and B11. **B9: =B1*B7/100; B10: =B9/365; B11: =(B5-B3)*B10**
5. Jason is closing on a \$430,000 home. He made a 13% down payment and is borrowing the rest. What is the approximate range of costs that he might expect to pay at the closing? **\$8,600–25,800**
6. Becky was told that based on the price of her home, her approximate closing costs would range from \$4,000 to \$12,000. How much was the price of her home? **\$200,000**

Exercises 7

Make sure that students understand what each column heading represents. The sum of the interest and principal amounts must equal the monthly payment amount.

7. Don and Celine have been approved for a \$400,000, 20-year mortgage with an APR of 3.35%. Using the mortgage and interest formulas, set up a 2-month amortization table with the headings shown and complete the table for the first 2 months. *See additional answers.*

Payment Number	Beginning Balance	Monthly Payments	Toward Interest	Toward Principal	Ending Balance
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ANSWERS

1. For many, home ownership is a sign of financial stability, security, and an indication that “we’ve made it.” Suze Orman goes even further, stating that it is a key component of being wealthy.

8. Rob has been approved for a \$275,000, 15-year mortgage with an APR of 2.9%. Using the mortgage and interest formulas, set up a table with the above headings and complete the table for the first 2 months. *See additional answers.*
9. Use a spreadsheet to generate the first year of payments in a loan amortization table for a \$200,000, 10-year mortgage with an APR of 3.4%. *See additional answers.*
10. Use a spreadsheet to generate the last year of payments in a loan amortization table for a \$600,000, 15-year mortgage with an APR of 3.5%. *See additional answers.*
11. Shannon took out a \$300,000, 15-year mortgage with an APR of 3.65%. The first month she made an extra payment of \$400. What was her ending balance at the end of that first month? **\$298,345.69**

12. Examine the loan amortization table for the last 5 months of a \$500,000, 15-year mortgage with an APR of 4.05%. Determine the missing table amounts. a. \$3,710.98; b. \$14,719.52; c. \$37.32; d. \$3,686.06; e. \$0

Payment Number	Beginning Balance	Monthly Payment	Toward Interest	Toward Principal	Ending Balance
176	\$18,368.50	a.	\$61.99	\$3,648.99	\$14,719.52
177	b.	a.	\$49.68	\$3,661.30	\$11,058.21
178	\$11,058.21	a.	c.	\$3,673.66	\$7,384.56
179	\$7,384.56	a.	\$24.92	d.	\$3,698.50
180	\$3,698.50	a.	\$12.48	\$3,698.50	e.

13. Examine the loan amortization table for a \$210,000, 15-year mortgage with an APR of 3.8%. The borrower paid an extra \$100 each month toward the principal. Determine the missing amounts. a. \$1,532.38; b. \$209,032.62; c. \$208,062.18; d. \$658.86; e. \$976.60
Answers may vary due to rounding.

Payment Number	Beginning Balance	Monthly Payment	Extra Payment	Toward Interest	Toward Principal	Ending Balance
1	\$210,000.00	a.	\$100.00	\$665.00	\$967.38	\$209,032.62
2	b.	a.	\$100.00	\$661.94	\$970.44	c.
3	\$208,062.18	a.	\$100.00	d.	\$973.52	\$207,088.66
4	\$207,088.66	a.	\$100.00	\$655.78	e.	\$206,112.05
5	\$206,112.05	a.	\$100.00	\$652.69	\$979.69	\$205,132.36

14. Examine this portion of an amortization table for an adjustable rate mortgage that had a 1-year initial rate period was 2.87% and increased to 3.37% after that period ended. Determine the missing amounts. a. \$1,505.56; b. \$209,096.88; c. \$1,555.43; d. \$581.66; e. \$976.50

Interest Rate	Payment Number	Beginning Balance	Monthly Payment	Toward Interest	Toward Principal	Ending Balance
2.87%	11	\$210,099.96	a.	\$1,045.00	\$1,003.07	b.
2.87%	12	\$209,096.88	a.	\$500.09	\$1,005.47	\$208,091.41
3.37%	13	\$208,091.41	c.	\$584.39	\$971.04	\$207,120.37
3.37%	14	\$207,120.37	c.	d.	\$973.77	\$206,146.60
3.37%	15	\$206,146.60	c.	\$578.93	e.	\$205,170.09

15. Tom took out a \$440,000, 15-year adjustable rate mortgage with a 2.85% initial 6-month rate. The amortization table for the initial rate period is shown. After the first 6 months, the rate went up to 3.45%. Calculate the next row of the table.

Payment Number	Beginning Balance	Monthly Payment	Toward Interest	Toward Principal	Ending Balance
1	\$440,000.00	\$3,006.92	\$1,045.00	\$1,961.92	\$438,038.08
2	\$438,038.00	\$3,006.92	\$1,040.34	\$1,966.58	\$436,071.50
3	\$436,071.50	\$3,006.92	\$1,035.67	\$1,971.25	\$434,100.26
4	\$434,100.26	\$3,006.92	\$1,030.99	\$1,975.93	\$432,124.33
5	\$432,124.33	\$3,006.92	\$1,026.30	\$1,980.62	\$430,143.71
6	\$430,143.71	\$3,006.92	\$1,021.59	\$1,985.33	\$428,158.38
7	\$428,158.38	\$3,130.72	\$1,230.96	\$1,899.76	\$426,258.62

TEACH

Exercise 15

Make sure that students understand that there will

be a change in the monthly payment for the new row they are calculating. This monthly payment must reflect an increase of 0.6% in the APR.