

## ▶ Extending Concepts

**Discount Points** In Exercises 21 and 22, use the information below.

Lenders may offer you the option to purchase *discount points* to reduce the interest rate on a loan. One point is equal to one percent of the loan amount.



21. You take out a home mortgage for \$150,000 for 30 years.
- Compare the monthly payments of mortgage A and mortgage B.  
Mortgage A: 4.5% with 2 points  
Mortgage B: 5% with no points
  - Suppose you choose mortgage A. How long will it take you to pay off the points with your monthly savings from the lower rate?
22. You take out a home mortgage for \$120,000 for 30 years.
- Compare the monthly payments of mortgage A and mortgage B.  
Mortgage A: 5.5% with 3 points  
Mortgage B: 6% with 1 point
  - Suppose you choose mortgage A. How long will it take you to pay off the points with your monthly savings from the lower rate?



23. **Mortgage Reset** You take out a 7-year balloon mortgage for \$160,000. The monthly payment is equal to that of a 30-year mortgage with an annual percentage rate of 5.5%. At the end of 7 years, you have the option to reset the mortgage and pay off the remaining balance over the next 23 years with an annual percentage rate of 6.5%.
- How much interest do you pay?
  - How much would you save in interest by taking out a 30-year mortgage with an annual percentage rate of 6%?
24. **Principal and Interest** You take out a home mortgage for \$150,000 for 15 years with an annual percentage rate of 6%.
- Find the total amount that you pay in interest each year and the total amount that you pay toward the principal each year.
  - Make a double bar graph that displays the information in part (a). Describe any trends in the graph.
25. **Mortgage Affordability** You can afford to make monthly payments of \$600. How large of a home mortgage can you afford at a rate of 5% for a term of 30 years?
26. **Adjustable-Rate Mortgage** You take out a 30-year adjustable-rate mortgage (ARM) for \$100,000. The interest rate is 5% for the first 5 years and 8% for the sixth year. What is “ARM reset shock”? How can you avoid it?

