

Name \_\_\_\_\_

# 9-3A Lesson Master

**Questions on SPUR Objectives**  
See Student Edition pages 656–659 for objectives.

## VOCABULARY

- Approximate  $e$  to the nearest millionth. \_\_\_\_\_
- Evaluate to the nearest thousandth.
  - $e^{2.8} \approx$  \_\_\_\_\_
  - $e^{0.05} \approx$  \_\_\_\_\_
  - $e^{-2} \approx$  \_\_\_\_\_
- Identify whether  $e$  is a number of each type.
  - real \_\_\_\_\_
  - rational \_\_\_\_\_
  - imaginary \_\_\_\_\_

## PROPERTIES Objective D

- Consider the function  $f(t) = A \cdot e^{r \cdot t}$ .
  - What does  $A$  represent? \_\_\_\_\_
  - $f(0) =$  \_\_\_\_\_
  - Give the domain and range of  $f$ . \_\_\_\_\_
  - For what values of  $r$  does the function model exponential decay? \_\_\_\_\_

## USES Objective G

- You save \$2400 from your summer job to help pay for college. A bank offers a 2-year certificate of deposit with interest rate  $r$ .
  - Write an expression for the final amount if the interest is compounded annually. \_\_\_\_\_
  - Write an expression for the final amount if the interest is compounded continuously. \_\_\_\_\_
  - Suppose the interest rate is 2.25%. How much more will you earn if the interest is compounded continuously than if it is compounded annually? \_\_\_\_\_
- Ibuprofen is a common pain medication. Typically, the amount of ibuprofen  $I$  in your body  $t$  hours after you take an initial dose of  $D$  mg is given by  $I = De^{-0.365t}$ . Suppose you take 400 mg of ibuprofen for a headache.
  - How much ibuprofen is in your body after 30 minutes? \_\_\_\_\_
  - About how long will it take for there to be only 100 mg in your body? \_\_\_\_\_
- A family bought a house in 2003 for \$200,000. If its value grows continuously at a rate of 4.5%, what will it be worth in 2010? \_\_\_\_\_

Copyright © Wright Group/McGraw-Hill