7-1 Standardized Test Prep

Exploring Exponential Models

Multiple Choice

For Exercises 1 and 2, choose the correct letter.

1. Which of the following functions represents exponential decay and has a *y*-intercept of 2?

   Ⓐ $y = 2\left(\frac{4}{3}\right)^x$

   Ⓒ $y = \frac{1}{4}(2)^x$

   Ⓑ $y = \frac{1}{2}(0.95)^x$

   Ⓓ $y = 2\left(\frac{2}{5}\right)^x$

2. Suppose you deposit $3000 in a savings account that pays interest at an annual rate of 4%. If no other money is added or withdrawn from the account, how much will be in the account after 10 years?

   Ⓕ $3122.18

   Ⓗ $4440.73

   Ⓖ $4994.50

   Ⓘ $86,776.40

Extended Response

3. In 2009 there was an endangered population of 270 cranes in a western state. Due to wildlife efforts, the population is increasing at a rate of 5% per year.
   a. What exponential function would be a good model for this population of cranes? Explain in words or show work for how you determined the exponential function.
   b. If this trend continues, how many cranes will there be in this population in 2020? Show your work.