UNIT 4 • MODELING AND ANALYZING EXPONENTIAL FUNCTIONS
Lesson 1: Creating Exponential Equations

Assessment

Pre-Assessment

Circle the letter of the best answer.

1. A population of rabbits doubles every 4 months. If the population starts out with 8 rabbits, how many rabbits will there be in 1 year?

   a. 128 rabbits

   b. 64 rabbits

   c. 32 rabbits

   d. 16 rabbits

2. A town's population increases at a rate of 2.3% every year. The current population is 7,500 people. Which equation models the population of the town over time?

   a. $y = 7500(1.23)^x$

   b. $y = 7500(1.023)^x$

   c. $y = 7500(0.023)^x$

   d. $y = 7500(0.23)^x$

3. A type of bacteria triples in population every 6 hours. If you started with 59 bacteria in a petri dish, how many would you have after 48 hours?

   a. 43,011 bacteria

   b. 387,099 bacteria

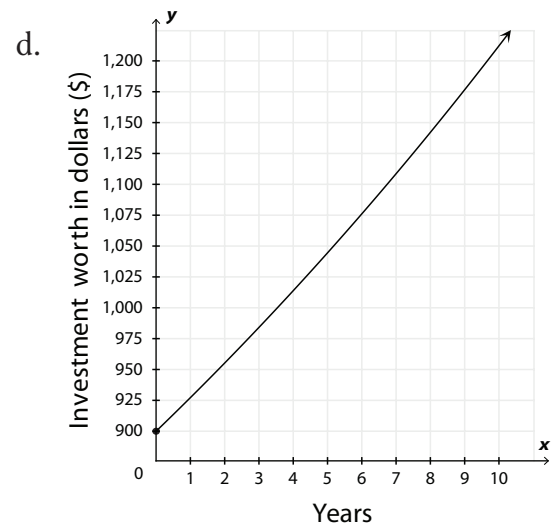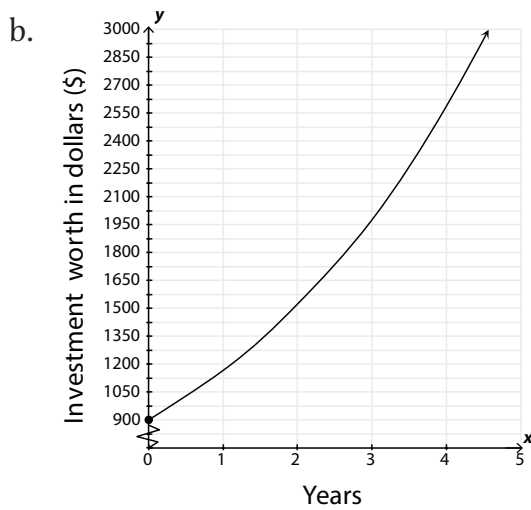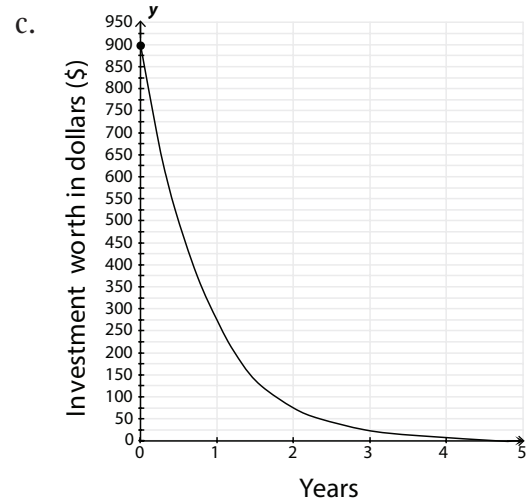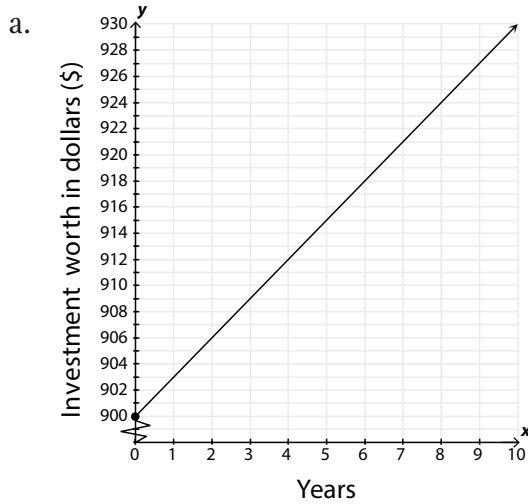   c. 472 bacteria

   d. 4,706,220,142 bacteria

continued

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4. An investment of $900 earns 3% interest, which is compounded semiannually. Which graph models the worth of the investment over time?
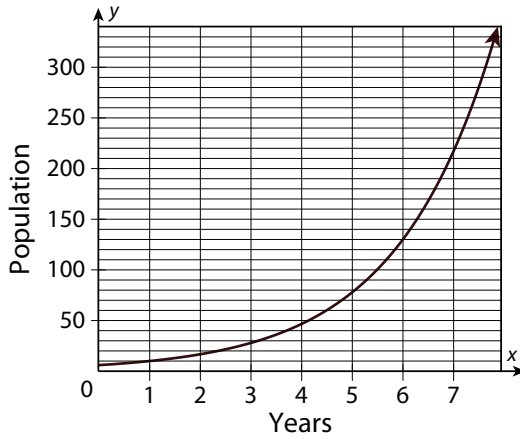
a.

b.

c.

d.

continued

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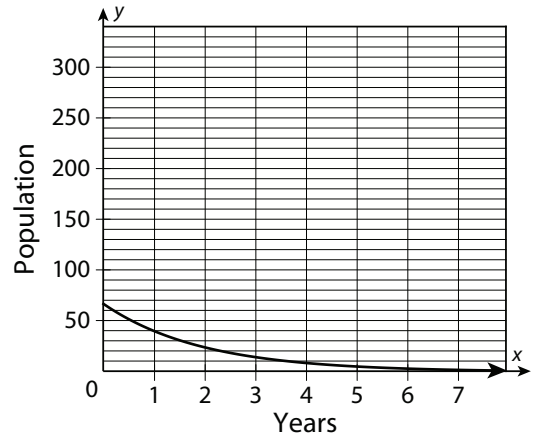### Lesson 1: Creating Exponential Equations

5. The population of white-tailed deer can increase by 67% in one year under ideal conditions. If a group of 6 deer is introduced to a new area, which graph represents the maximum population growth?
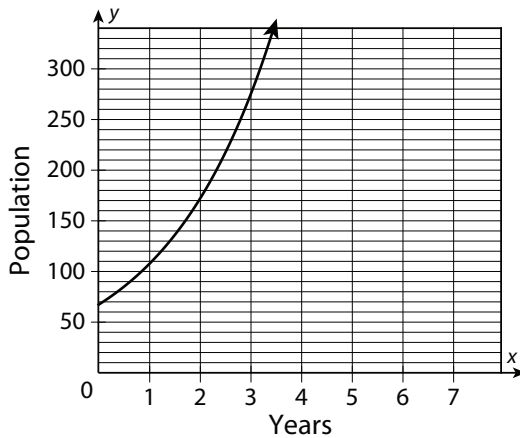
a.

c.

b.

d.