

## LESSON

## 1-4

**Problem Solving****Powers and Exponents**

Write the correct answer.

- The population of a certain bacteria doubles in size every 3 hours. If a population begins with one bacterium, how many will there be after one day?  
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- The top of Julie's nightstand has the shape of a circle with diameter 14 inches. Find the area of the top of Julie's nightstand. (Recall that the area of a circle can be approximated by squaring the length of its radius and then multiplying by 3.14.)  
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- The population of Bridgeville triples every decade. If its population in 2000 was 25,000, how many people will be living in Bridgeville in 2030?  
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- The number of subscribers to a popular new magazine quadruples every month. If there were initially 500 subscribers, how many subscribers will there be after six months?  
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A square photograph measuring 8 inches by 8 inches is positioned within a 1-inch wide picture frame as shown below. Select the best answer.

- What is the area of the photograph alone?  
A  $16 \text{ in}^2$                       C  $49 \text{ in}^2$   
B  $32 \text{ in}^2$                       D  $64 \text{ in}^2$
- What is the combined area of the photograph and frame?  
F  $64 \text{ in}^2$                       H  $100 \text{ in}^2$   
G  $81 \text{ in}^2$                       J  $144 \text{ in}^2$
- What is the area of the frame alone?  
A  $8 \text{ in}^2$                       C  $36 \text{ in}^2$   
B  $17 \text{ in}^2$                       D  $49 \text{ in}^2$
- If the 1-inch wide frame is replaced with a 2-inch wide frame, how much more wall space will be needed to hang the framed photograph?  
F  $19 \text{ in}^2$                       H  $102 \text{ in}^2$   
G  $44 \text{ in}^2$                       J  $144 \text{ in}^2$

