

Lesson 2 Practice Problems

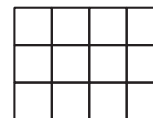
1. How many small squares are in Step 10?



Step 1



Step 2

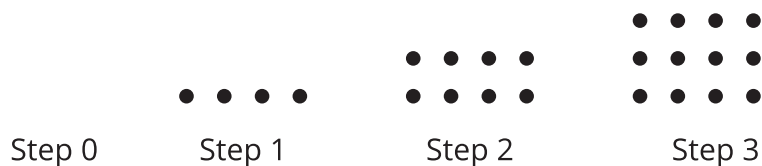


Step 3

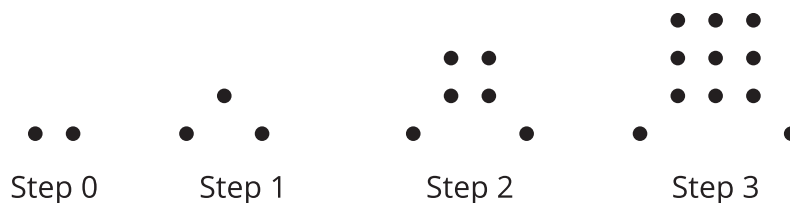
- A. 10
- B. 11
- C. 90
- D. 110

2. Here are 2 patterns of dots.

Pattern A



Pattern B



- a. How many dots will there be in Step 4 of each pattern?
- b. Which pattern shows a quadratic relationship between the step number and the number of dots? Explain how you know.

3. Here are descriptions for how two dot patterns are growing.

- Pattern A: Step 2 has 10 dots. It grows by 3 dots at each additional step.
- Pattern B: The total number of dots can be expressed by $2n^2 + 1$, where n is the step number.

For each pattern, draw a diagram of Step 0 to Step 3.

4. Each expression represents the total number of dots in a pattern where n represents the step number.

Select **all** the expressions that represent a quadratic relationship between the step number and the total number of dots. (If you get stuck, consider sketching the first few steps of each pattern as described by the expression.)

A. n^2

B. $2n$

C. $n \cdot n$

D. $n + n$

E. $n + 2$

F. $n \div 2$

5. The function C gives the percentage of homes using only cell phone service x years after 2004. Explain the meaning of each statement.

a. $C(10) = 35$

b. $C(x) = 10$

c. How is $C(10)$ different from $C(x) = 10$?

(From Unit 4, Lesson 3.)

6. Here are some lengths, widths, and areas of a garden whose perimeter is 40 feet.

a. Complete the table with the missing measurements.

b. What lengths and widths do you think will produce the largest possible area? Explain how you know.

length (ft)	width (ft)	area (sq ft)
4	16	64
8	12	
10		
12		96
14		
16		64

(From Unit 6, Lesson 1.)

7. A bacteria population is 10,000 when it is first measured and then doubles each day.

a. Use this information to complete the table.

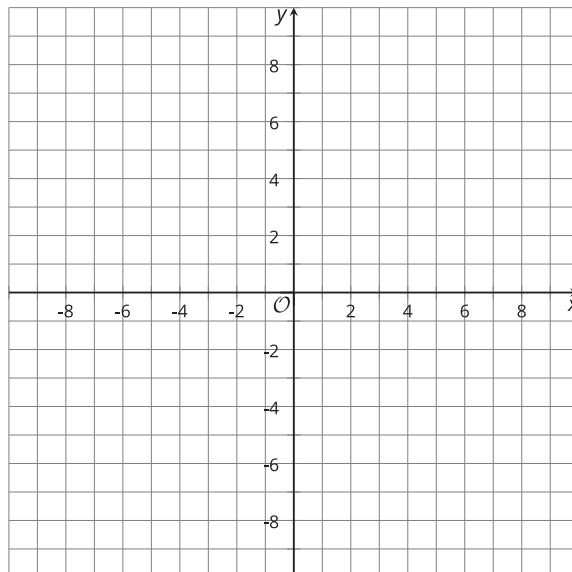
b. Which is the first day, after the population was originally measured, that the bacteria population is more than 1,000,000?

c. Write an equation relating p , the bacteria population, to d , the number of days since it was first measured.

d , time (days)	p , population (thousands)
0	
1	
2	
5	
10	
d	

(From Unit 5, Lesson 3.)

8. Graph the solutions to the inequality $7x - 3y \geq 21$.



(From Unit 2, Lesson 21.)