Students are asked to use their observations and pattern recognition skills to extend patterns and predict the number of dots that will be in a figure that is too large to draw. Later, variables will be used to describe the patterns.

Example

Examine the dot pattern at right. Assuming the pattern continues:

a. Draw Figure 4.

b. How many dots will be in Figure 10?

Solution:

The horizontal dots are one more than the figure number and the vertical dots are even numbers (or, twice the figure number).

Figure 1 has 3 dots, Figure 2 has 6 dots, and Figure 3 has 9 dots. The number of dots is the figure number multiplied by three.

Figure 4

Figure 10 has 30 dots.

Problems

For each dot pattern, draw the next figure and determine the number of dots in Figure 10.

1. 

Figure 1

Figure 2

Figure 3

2. 

Figure 1

Figure 2

Figure 3

Figure 4

3. 

Figure 1

Figure 2

Figure 3

4. 

Figure 1

Figure 2

Figure 3

5. 

Figure 1

Figure 2

Figure 3

6. 

Figure 1

Figure 2

Figure 3
Answers

1. 50 dots

2. 31 dots

3. 110 dots

4. 22 dots

5. 40 dots

6. 140 dots