

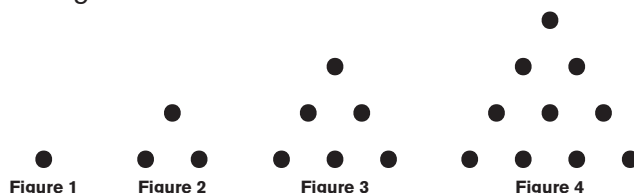
Representing Patterns Numerically



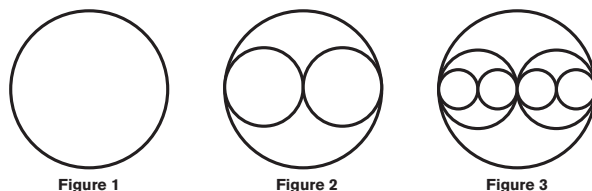
Warm-Up!

Try these problems before watching the lesson.

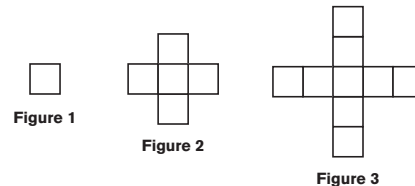
1. A sequence of figures is created with dots as shown. If this pattern continues, how many dots will be in Figure 5?



2. A sequence of figures is created by inscribing circles in the pattern shown. How many circles will there be in Figure 4?



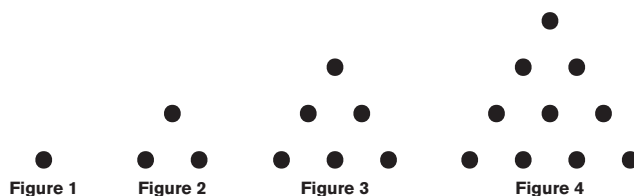
3. A sequence of figures is created with squares as shown. If the pattern continues, how many squares will be in Figure 4?



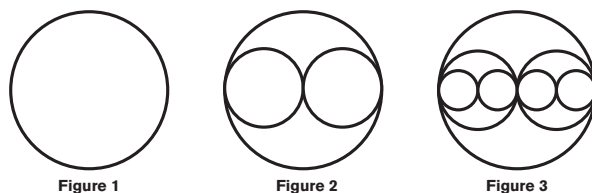
The Problems

Take a look at the following problems and follow along as they are explained in the video.

4. A sequence of figures is created with dots as shown. If this pattern continues, how many dots will be in Figure 10?



5. A sequence of figures is created by inscribing circles in the pattern shown. How many circles will there be in Figure 7?

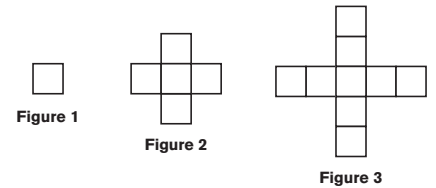




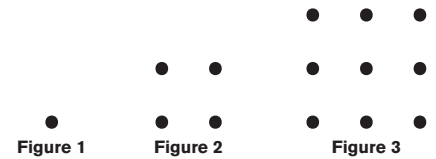
Piece It Together

Use the skills you practiced in the warm-up and strategies from the video to solve the following problems.

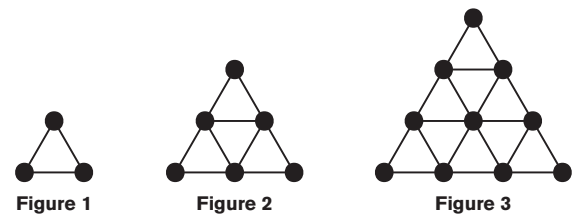
6. A sequence of figures is created with squares as shown. If the pattern continues, how many squares will be in Figure 10?



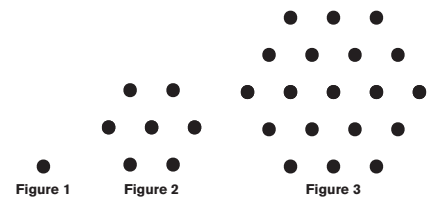
7. A sequence of figures is created with dots as shown. If this pattern continues, how many dots will be in Figure 10?



8. A sequence of figures is created by lines and dots as shown. If each segment from a dot to its nearest neighbor has length 1, then how many triangles of perimeter 3 will there be in Figure 7?



9. A sequence of figures is created with dots as shown. If this pattern continues, how many dots will be in Figure 5?



Optional Extension

To extend your understanding and have a little fun with math, try the following activities.

Now, try to write a formula for each of the patterns we looked at in the Warm-Up and Piece It Together problems. Use the variable n (or other variable of your choosing) where n represents the figure number. This formula should allow you to find the number of items you are counting (dots, circles, squares or triangles) in any figure number by plugging in for n and following the rules of the formula.