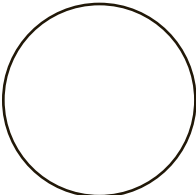
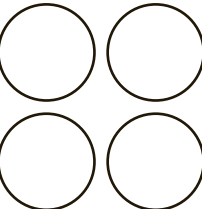
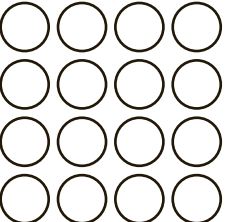
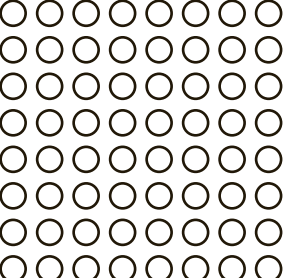


The table below shows figures composed of circles. The number of circles in each figure and the diameter of each circle in each figure follow a pattern, as shown.

| | Figure 1 | Figure 2 | Figure 3 | Figure 4 |
|--|---|---|--|---|
| |  |  |  |  |
| Number of Circles | 1 | 4 | 16 | 64 |
| Diameter of Each Circle (in inches) | 1 | $\frac{1}{2}$ | $\frac{1}{4}$ | $\frac{1}{8}$ |

- What is the number of circles in figure 5? Show or explain how you got your answer.
- What is the diameter, in inches, of each circle in figure 5? Show or explain how you got your answer.
- What is the ratio of the number of circles in figure 6 to the number of circles in figure 7? Show or explain how you got your answer.
- Write an algebraic expression that could be used to determine the number of circles in figure n .
- Write an algebraic expression that could be used to determine the diameter, in inches, of each circle in figure n .