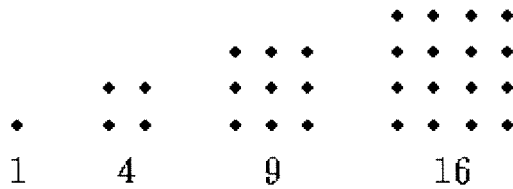
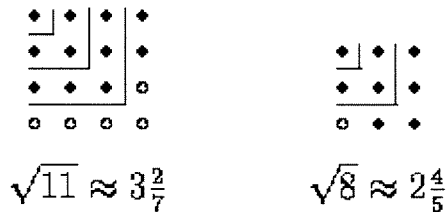


3. The 1st four *square numbers* are shown below.



Suppose we denote the n^{th} square number by S_n . Write a rule for determining S_n for any n .

To the ancient Greeks, the square root of a number in this sequence was the number of dots along one side of the square that represents the number. For non-square natural numbers, they used a clever technique to estimate the square roots. This technique is illustrated below.



Use this technique to arrive at the approximation $[\sqrt{22}] \approx 4\frac{6}{9}$.