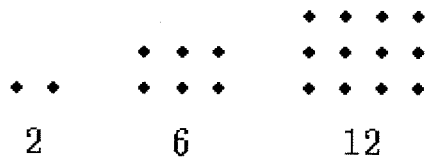
Figurate Numbers

Figurate numbers can be represented by dots arranged in the shape of certain geometric figures. For example, the 1st three *rectangular numbers* are shown below.

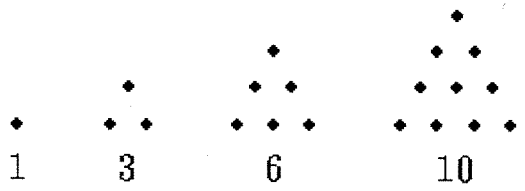
1. Consider the sequence of *rectangular numbers* whose 1st three terms are shown below.



Find the next three rectangular numbers by drawing the corresponding arrays. Let R_n denote the n^{th} rectangular number. Complete the table below and find R_{10} and R_{20}. Try to find a rule for finding R_n for any value of n.

n	1	2	3	4	5	6	7	8	9	10	11
R_n											

2. The 1st four *triangular numbers* are shown below.



Determine the next three triangular numbers by drawing the corresponding trianglular arrays. Let T_n denote the n^{th} triangular number. Complete the table below and find T_{10} and T_{20}. Try to find a rule for finding T_n for any value of n.

n	1	2	3	4	5	6	7	8	9	10	11
T_n											