

## 7.3 – Creating Rules to Define Sequences

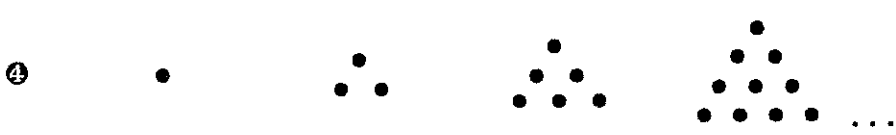
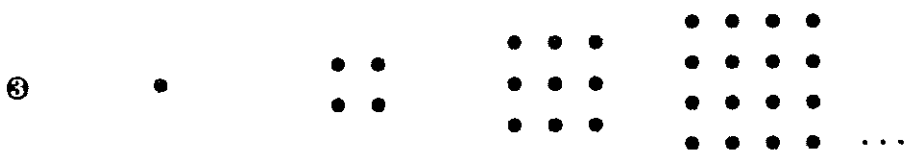
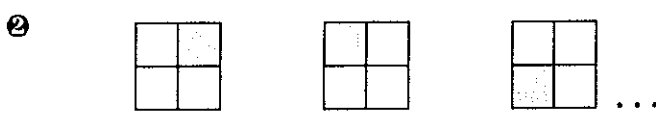
### Pattern Sleuthing

*A Mathematician, like a painter or a poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with ideas.*

G. H. Hardy (number theorist)



Look for a pattern in each sequence of diagrams and draw the one that comes next. Explain the pattern that you find in each case, then determine a rule for calculating  $t_n$ , where  $n$  is the term number.



Look for a pattern in each sequence. Describe the pattern that you discover. Then fill in the next three numbers. Determine a rule for calculating  $t_n$ .

- ⑤ 7, 14, 21, 28, , , , ...    ⑥ 3, 7, 11, 15, , , , ...
- ⑦ 3, 6, 10, 15, , , , ...    ⑧ 1, 4, 9, 16, , , , ...
- ⑨ 3, 8, 15, 24, , , , ...    ⑩ 2, 4, 8, 16, , , , ...
- ⑪ 4, 6, 10, 18, , , , ...    ⑫ 2, 6, 12, 20, , , , ...

**Extension**

13. 1, 1, 2, 3, 5, , , , ...

Write a recursive formula for  $t_n$ , using  $t_{n-1}$  and  $t_{n-2}$

Homework: p339 #1-5, 7, 9, 10