Sequences

i. **For each of the number sequences below, calculate the next two numbers that will appear in the sequence**

- $2, 4, 6, 8$
- $2, 5, 8, 11$
- $1, 4, 9, 16$
- $7, 4, 1, -2$
- $48, 46, 44, 42$
- $1, {}^1/_2, {}^1/_3, {}^1/_4$
- $99, 198, 297, 296$
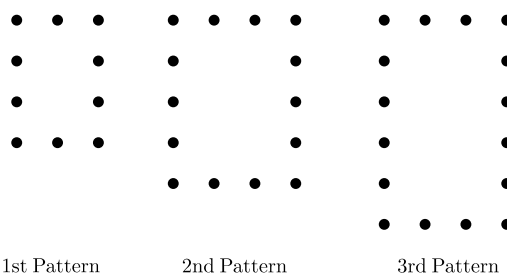- $17, 21, 25, 29$
- $1, 9, 17, 25, 33$

ii. **What is the rule for each of the number sequences in Question i?**

iii. **For each of the following n^{th} terms, write out the first 5 terms of the sequence**

- $2n + 1$
- $4n + 5$
- $10n - 4$
- $\dfrac{2000}{2n}$
- $\dfrac{n}{3}$

iv. **What is the 500th term of each of the sequences in Question iii?**

v. **Here are some patterns made up of dots.**

1st Pattern   2nd Pattern   3rd Pattern

- Draw a sketch of the 4th pattern.
- Complete the table.

Pattern number	1	2	3	4	5
Number of dots	10	14	18		

- How many dots are used in the 10th pattern?