

3. Find the  $n^{\text{th}}$  term for the sequence:

a)  $-5, -7, -9, -11, \dots$

b)  $-8, 0, 8, \dots$

c)  $\frac{1}{5}, \frac{1}{4}, \dots$

$$d = \frac{1}{4} - \frac{1}{5} = \frac{1}{20}$$

a)  $a_n = a_1 + (n-1)d$

$$a_n = -5 + (n-1)(-2)$$

$$24 = -5 + (n-1)(-2) + 2$$

$$24 = -3 + (n-1)(-2) \quad \checkmark \text{ c)}$$

$$\frac{1}{5} - \frac{1}{20}$$

$$\frac{n}{20} = \frac{1}{20} \times n = \frac{1}{20}n = n \times \frac{1}{20}$$

b)

$$a_n = a_1 + (n-1)d$$

$$a_n = -8 + (n-1)8$$

$$a_n = -8 + 8n - 8$$

$$a_n = -16 + 8n \quad \checkmark$$

$$a_n = a_1 + (n-1)d$$

$$a_n = \frac{1}{5} + (n-1)\frac{1}{20}$$

$$a_n = \frac{1}{5} + \frac{n}{20} - \frac{1}{20} = \frac{n}{20} + \frac{3}{20}$$

4. A sequence has first term 25 and the difference between the terms is always 13.
- a) Determine a formula to generate the terms of the sequence.
- b) Calculate the first 5 terms of the sequence

$$a_n = a_1 + (n-1)d \leftarrow$$

$$a_n = 25 + (n-1)13$$

$$a_n = 12 + 13n$$

$$a_1 = 25$$

$$a_2 = 12 + 13 \times 2 = 38 \checkmark$$

$$a_3 = 12 + 13 \times 3 = 51 \checkmark$$

$$a_4 = 12 + 13 \times 4 = 64 \checkmark$$

$$a_5 = 12 + 13 \times 5 = 77 \checkmark$$

nces

5. A sequence is defined by the formula  $a_n = 8n + 2$

- Calculate the first 5 terms of the sequence
- What is the difference between the terms of the sequence?
- Write down the next 3 terms of the sequence
- Find the 52<sup>th</sup> term of this sequence.

$$n=52$$

$$a_{52} = 8 \times 52 + 2 =$$

$$a_1 = 8 \times 1 + 2 = 10$$

$$a_2 = 8 \times 2 + 2 = 18$$

$$a_3 = 26$$

$$a_4 = 34 \checkmark$$

$$a_5 = 42 \checkmark$$

$$a_n = 8n + 2$$

$$a_n = 8 \times 4 + 2$$