**1** A linear sequence starts

$$3 \quad 6 \quad 9 \quad 12 \quad \dots$$

Work out an expression for the $n$th term of the sequence. **[1 marks]**

Answer    $3n$

**2** A linear sequence starts

$+4$ $\begin{array}{cccc} 2 & 4 & 6 & 8 \end{array}$

$$6 \xrightarrow{+2} 8 \xrightarrow{+2} 10 \xrightarrow{+2} 12 \quad \dots$$

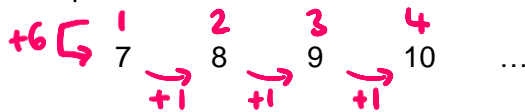Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer    $2n + 4$

**3** A linear sequence starts

$-1$ $\begin{array}{cccc} 3 & 6 & 9 & 12 \end{array}$

$$2 \xrightarrow{+3} 5 \xrightarrow{+3} 8 \xrightarrow{+3} 11 \quad \dots$$

Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer    $3n - 1$

5

**4** A linear sequence starts

$+5$ ↳ 4    8    12    16
   9    13    17    21    …
      +4   +4   +4

Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer $4n + 5$

**5** A linear sequence starts

$+6$ ↳ 1    2    3    4
   7    8    9    10    …
      +1   +1   +1

Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer $n + 6$

**6** A linear sequence starts

$-3$ ↳ 5    10    15    20
   2    7    12    17    …
      +5   +5   +5
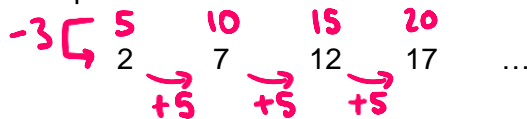
Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer $5n - 3$

**7** A linear sequence starts

$+44$ ⤷ **6** **12** **18** **24**
50    56    62    68    …
    +6    +6    +6
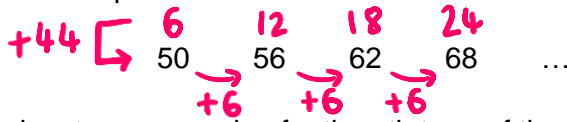
Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer    $6n + 44$

**8** A linear sequence starts

$-13$ ⤷ **10** **20** **30** **40**
-3    7    17    27    …
    +10    +10    +10
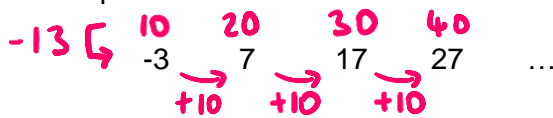
Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer    $10n - 13$

**9** A linear sequence starts

$+3.5$ ⤷ **0.5** **1** **1.5** **2**
4    4.5    5    5.5    …
    +0.5    +0.5    +0.5
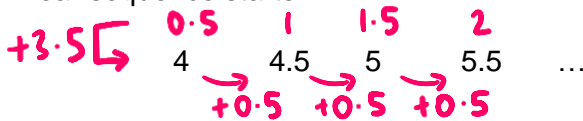
Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer    $0.5n + 3.5$

12

**Turn over ▶**

**10** A linear sequence starts

+11 ⤷   -2    -4    -6    -8
       9    7    5    3     …
        -2   -2   -2
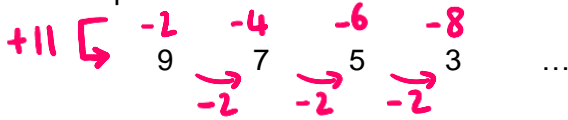
Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer $-2n + 11$

**11** A linear sequence starts

+19 ⤷   -4    -8    -12    -16
       15   11    7    3     …
         -4   -4   -4
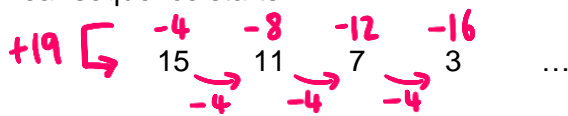
Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer $-4n + 19$

**12** A linear sequence starts

+14 ⤷   -5    -10    -15    -20
       9    4    −1    −6     …
        -5   -5   -5
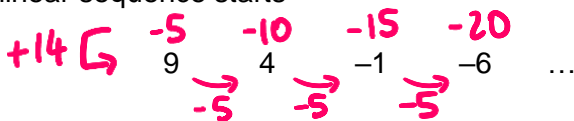
Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer $-5n + 14$

**13** A linear sequence starts

$+10$ ⌐→    $-9$    $-18$    $-27$    $-36$

          1    $-8$    $-17$    $-26$    …

              $-9$    $-9$    $-9$

Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer     $-9n + 10$

**14** A linear sequence starts

$+111$ ⌐→    $-11$    $-22$    $-33$    $-44$

          100    89    78    67    …

             $-11$    $-11$    $-11$

Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer     $-11n + 111$

**15** A linear sequence starts

$+6.2$ ⌐→    $-0.2$    $-0.4$    $-0.6$    $-0.8$

          6    5.8    5.6    5.4    …

            $-0.2$    $-0.2$    $-0.2$

Work out an expression for the $n$th term of the sequence. **[2 marks]**

Answer     $-0.2n + 6.2$

12

**Turn over ►**

**16** A linear sequence starts

$+1$   5    10    15    20    25

6 $\rightarrow$ 11 $\rightarrow$ 16 $\rightarrow$ 21 $\rightarrow$ 26    …

$+5$   $+5$   $+5$   $+5$

Work out the 20th term of the sequence.    **[3 marks]**

$5n + 1$

$5 \times 20 + 1$

$= 100 + 1$

Answer    **101**

**17** A linear sequence starts

$-5$   6    12    18    24    30

1 $\rightarrow$ 7 $\rightarrow$ 13 $\rightarrow$ 19 $\rightarrow$ 25    …

$+6$   $+6$   $+6$   $+6$

Work out the 50th term of the sequence.    **[3 marks]**

$6n - 5$

$6 \times 50 - 5$

$= 300 - 5$

Answer    **295**

**18** A linear sequence starts

$-2$   4    8    12    16    20

2 $\rightarrow$ 6 $\rightarrow$ 10 $\rightarrow$ 14 $\rightarrow$ 18    …

$+4$   $+4$   $+4$   $+4$

Work out the 100th term of the sequence.    **[3 marks]**

$4n - 2$

$4 \times 100 - 2$

$= 400 - 2$

Answer    **398**

**19**    A linear sequence starts

    4      7      10      13      16      …

Is the number 91 in the sequence?
Tick **one** box

[✓] Yes          [ ] No

Show working to support your answer.                    **[3 marks]**

$$3n + 1 = 91$$
$$3n = 90$$
$$n = 30$$

It is the 30$^{th}$ term


**20**    A linear sequence starts

    3      7      11      15      19      …

Is the number 201 in the sequence?
Tick **one** box

[ ] Yes          [✓] No

Show working to support your answer.                    **[3 marks]**

$$4n - 1 = 201$$
$$4n = 202$$
$$n = 50.5$$

50.5 is not an integer

15

**Turn over ▶**

**21** A linear sequence starts

7      13      19      25      31      …

Is the number 124 in the sequence?
Tick **one** box

| Yes | ✓ No |

Show working to support your answer. **[3 marks]**

$$6n + 1 = 124$$
$$6n = 123$$
$$n = 20.5$$

50.5 is not an integer

**22** A linear sequence starts

50      47      44      41      38      …

Is the number –10 in the sequence?
Tick **one** box

| ✓ Yes | No |

Show working to support your answer. **[3 marks]**

$$-3n + 53 = -10$$
$$-3n = -63$$
$$n = 9$$

It is the 9th term

6