**Clumsy Clive On Sequences - Answers**

Clive is tackling his sequences homework and knows that he’s made mistakes somewhere.

Can you spot and correct the mistakes Clive has made?

Can you explain what mistakes Clive has made, and maybe give him some tips so that he (hopefully) doesn’t make them again?

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| **Question 1:**Find the next term in the sequence:$$2,5,10,17…$$ |
| *Clive’s answer:* | *Your answer:* |
| The rule is “add $7$” because $10+7=17$. Answer:$$24$$ | The difference is increasing by $2$ each time.Answer:$$26$$ |
| *What mistake has Clive made?*He has only looked at the previous two terms and not the whole sequence. |
| **Question 2:**Find the nth term of the sequence:$$5,9,13,17…$$ |
| *Clive’s answer:* | *Your answer:* |
| In order to get to the next term in the sequence you must add $4$.Answer:$$n+4$$ | In order to get to the next term in the sequence you must add $4$.The sequence is “the $4$ times table, add $1$”.Answer:$$4n+1$$ |
| *What mistake has Clive made?*The sequence Clive has written is “the $1$ times table, add 4”. |
| **Question 3:**Find the 20th term of this sequence:$$3,9,15,21…$$ |
| *Clive’s answer:* | *Your answer:* |
| The next term in the sequence is $27$ as the rule is “add $6$”.I need to multiply the 5th term by $4$ to get the 20th term.Answer:$$108$$ | The next term in the sequence is $27$ as the rule is “add $6$”.The nth term is $6n-3$.Substitute $n=20$Answer:$$117$$ |
| *What mistake has Clive made?*You can’t just multiply the 5th term by $4$ as this also multiplies the difference from the times table that it is linked to. |
| **Question 4:**Find the nth term of this sequence:$$20,17,14,11…$$ |
| *Clive’s answer:* | *Your answer:* |
| The rule from term-to-term is “subtract $3$” so the sequence is linked to the $-3$ times table.Answer:$$-3n+17$$ | The rule from term-to-term is “subtract $3$” so the sequence is linked to the $-3$ times table.To get from the $-3$ times table to $20$ is “add $23$”.Answer:$$-3n+23$$ |
| *What mistake has Clive made?*He has assumed that the difference is $3$ and not $-3$ so therefore the $17$ is incorrect. |
| **Question 5:**Jodie has the sequence $5,8,11,14…$She says that $151$ is in the sequence.Is Jodie correct? Explain you answer. |
| *Clive’s answer:* | *Your answer:* |
| If you keep adding $3$ you will eventually get to $151$.Answer:Jodie is correct. | Find the nth term: $3n+2$$$3n+2=151$$$$3n=149$$Since $149$ is not a multiple of $3$ the solution would not be a whole number and therefore Jodie is incorrect. |
| *What mistake has Clive made?*He has mis-counted where it would have been better to solve an equation  |