

M1.(a) $(n - 6)^2$ could be zero (so she is wrong)

or

The sixth term is 1

oe

B1

(b) 1

B1

[2]

M2.

$$(5n - 3)^2 + 1$$

M1

$$25n^2 - 15n - 15n + 9 + 1$$

*Allow one error**Must have an n^2 term*

M1

$$25n^2 - 30n + 10$$

A1

$$5(5n^2 - 6n + 2)$$

oe

e.g. shows that all terms divide by 5 or explains why the expression is a multiple of 5

B1ft

Alternative method 1Use of $an^2 + bn + c$ for terms of quadratic sequence

i.e. any one of

$$a + b + c = 5$$

$$4a + 2b + c = 50$$

$$9a + 3b + c = 145$$

M1

$$3a + b = 45$$

$$5a + b = 95$$

For eliminating c

M1

$$25n^2 - 30n + 10$$

A1

$$5(5n^2 - 6n + 2)$$

oe

e.g. shows that all terms divide by 5 or explains why the expression is a multiple of 5

B1ft

Alternative method 2

$$5 \quad 50 \quad 145 \quad 290$$

$$45 \quad 95 \quad 145$$

2nd difference of $50 \div 2 (= 25)$

$$25n^2$$

M1

Subtracts their $25n^2$ from terms of sequence

$$-20 \quad -50 \quad -80$$

$$-30n$$

M1

$$25n^2 - 30n + 10$$

A1

$$5(5n^2 - 6n + 2)$$

oe

e.g. shows that all terms divide by 5 or explains why the expression is a multiple of 5

B1ft

[4]