Question Number	Scheme	Marks
1.		

a	*b*	*c*	*abc*
1	**10**	**4**	**40**
2	**6**	**7**	**84**
3	**2**	**10**	**60**
All values of *abc* are multiples of 4			

One correct set *a*, *b* & *c* — B1

Two correct rows — M1

Fully correct + statement — A1

(3 marks)

Main method: Numerical solution finding all known solutions

B1: Any correct set of values for *a*, *b* and *c*. You can ignore any attempt at the product *abc*

M1: Any two fully correct rows including the correct calculations for the products.
Condone extra/ incorrect rows

A1: Fully correct. The solution must have

- the three correct rows with correct calculations for *abc*
- any extra (or incorrect) rows must be deleted or somehow excluded
- a minimal statement showing that they are aware that 40, 84 and 60 are multiples of 4. E.g they are all divisible by 4, use of a tick ✓, prove, QED, calculations such as $\frac{40}{4}=10$. They can be divided by 4 (on its own) is insufficient without further clarification such as "to give whole numbers"
- no incorrect calculations. E.g if their attempt to prove that 60 being a multiple of 4 includes $\frac{60}{4}=16$ then it is A0

Alt 1: Via deduction

B1: Either

Solves $a + b + c = 15$ with $c = 3a + 1$ to conclude that $4a + b = 14$ o.e. **and** states that *b* is even

Or

Uses $c=3a+1$ to state that if *a* is odd then *c* is even and if *a* is even then *c* is odd

M1: Attempts to generalise and offers one of the two possibilities for the product *abc*.

Either

states then when *a* is odd, *b* is even and *c* is even, therefore $abc = odd \times even \times even =$ multiple of 4

Or

states then when *a* is even, *b* is even and *c* is odd, therefore $abc = even \times even \times odd =$ multiple of 4

A1: Fully correct. The solution must have

- the two possible "calculations" for *abc*.
- no incorrect "calculations". E.g. if they state that $even \times even$ is a multiple of 4 because $2n \times 2n = 4n^2$ it is A0. It must be along the lines of $2m \times 2n = 4mn$ with different variables.

You may see a hybrid solution that can be marked along similar lines. Mark positively.
If you see a tabular solution and one via deduction, award marks for the better one.
Please use review if you are uncertain.