

## STEP II, 2018, Q6 EC

Solutions on this question either scored very well or very poorly, depending on the quality of explanation provided by candidates in their solutions. In the weakest cases the only marks that were awarded were for finding some of the particular cases.

In the first part of the question candidates were generally able to find the cases that satisfied the equation, but many of the explanations that there are no solutions if  $n \geq 5$  were not sufficiently well produced to receive full marks.

In the second part of the question many students just restated the theorems without explaining the reasoning that followed from them. The cases for small values of  $n$  were generally found, but some candidates struggled to find the pair (4,10). Some candidates also did not attempt to explain why the cases  $n = 5$  and  $n = 6$  did not produce solutions.

There were some attempts to calculate the values of large factorials in this question. Candidates should be aware that such an approach will not be the correct method with which to tackle the questions.



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