CCC '22 S1 - Good Fours and Good Fives

Canadian Computing Competition: 2022 Stage 1, Senior #1

Finn loves Fours and Fives. In fact, he loves them so much that he wants to know the number of ways a number can be formed by using a sum of fours and fives, where the order of the fours and fives does not matter. If Finn wants to form the number 14, there is one way to do this which is $14 = 4 + 5 + 5$. As another example, if Finn wants to form the number 20, this can be done two ways, which are $20 = 4 + 4 + 4 + 4 + 4$ and $20 = 5 + 5 + 5 + 5$. As a final example, Finn can form the number 40 in three ways: $40 = 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4 + 4$, $40 = 4 + 4 + 4 + 4 + 4 + 5 + 5 + 5 + 5$, and $40 = 5 + 5 + 5 + 5 + 5 + 5 + 5 + 5$.

Your task is to help Finn determine the number of ways that a number can be written as a sum of fours and fives.

Input Specification

The input consists of one line containing a number N.

The following table shows how the available 15 marks are distributed.

Marks Awarded	Bounds on N	Additional Constraints
3 marks	$1 \le N \le 10$	None
2 marks	$1 \le N \le 100\,000$	N is a multiple of 4
2 marks	$1 \le N \le 100\,000$	N is a multiple of 5
8 marks	$1 \le N \le 1\,000\,000$	None

Output Specification

Output the number of unordered sums of fours and fives which form the number N. Output 0 if there are no such sums of fours and fives.

Sample Input 1

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14
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Output for Sample Input 1

```
1
```

Explanation of Output for Sample Input 1

This is one of the examples in the problem description.

Sample Input 2

```
40
```

Output for Sample Input 2

```
3
```

Explanation of Output for Sample Input 2

This is one of the examples in the problem description.

Sample Input 3

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6
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Output for Sample Input 3

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0
```

Explanation of Output for Sample Input 3

There is no way to use a sum of fours and fives to get 6.