# Grading Students

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Problem Submissions Leaderboard Discussions Editorial

HackerLand University has the following grading policy:

- Every student receives a $grade$ in the inclusive range from $0$ to $100$.
- Any $grade$ less than $40$ is a failing grade.

Sam is a professor at the university and likes to round each student's $grade$ according to these rules:

- If the difference between the $grade$ and the next multiple of $5$ is less than $3$, round $grade$ up to the next multiple of $5$.
- If the value of $grade$ is less than $38$, no rounding occurs as the result will still be a failing grade.

For example, $grade = 84$ will be rounded to $85$ but $grade = 29$ will not be rounded because the rounding would result in a number that is less than $40$.

Given the initial value of $grade$ for each of Sam's $n$ students, write code to automate the rounding process. For each $grade_i$, round it according to the rules above and print the result on a new line.

**Input Format**

The first line contains a single integer denoting $n$ (the number of students).
Each line $i$ of the $n$ subsequent lines contains a single integer, $grade_i$, denoting student $i$'s grade.

**Constraints**

- $1 \leq n \leq 60$
- $0 \leq grade_i \leq 100$

**Output Format**

For each $grade_i$ of the $n$ grades, print the rounded grade on a new line.

**Sample Input 0**

```
4
73
67
38
33
```

**Sample Output 0**

```
75
67
40
33
```

**Explanation 0**

| ID | Original Grade | Final Grade |
|---|---|---|
| 1 | 73 | 75 |
| 2 | 67 | 67 |
| 3 | 38 | 40 |
| 4 | 33 | 33 |

1. Student $1$ received a $73$, and the next multiple of $5$ from $73$ is $75$. Since $75 - 73 < 3$, the student's grade is rounded to $75$.
2. Student $2$ received a $67$, and the next multiple of $5$ from $67$ is $70$. Since $70 - 67 = 3$, the grade will not be modified and the student's final grade is $67$.
3. Student $3$ received a $38$, and the next multiple of $5$ from $38$ is $40$. Since $40 - 38 < 3$, the student's grade will be rounded to $40$.
4. Student $4$ received a grade below $38$, so the grade will not be modified and the student's final grade is $33$.

**Submissions:** 22832
**Max Score:** 10
**Difficulty:** Easy

**Rate This Challenge:**

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Current Buffer (saved locally, editable) C++14

```cpp
#include <cmath>
#include <cstdio>
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;

int calc_grade(int grade) {
    if (grade < 38) return grade;

    int next_grade = floor(1 + grade/5) * 5;
    int distance = next_grade - grade;

    if (distance < 3) return next_grade;
    return grade;
}

int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    int n;

    cin >> n;

    while (n) {
        int tmp;
        cin >> tmp;
        cout << calc_grade(tmp) << "\n";
        n--;
    }

    return 0;
}
```

Line: 1 Col: 1

Upload Code as File  Test against custom input  Run Code  Submit Code