

The lost sequence**P74753_en**

As it is well known by the supporters of the series LOST, the following six numbers are keys in the Valenzetti equation, a mathematical formula to predict the end of humanity.



4 8 15 16 23 42

Dharma Iniciative, whose aim is to change the factors that would bring to the decline of humanity, has made the following program to generate the n first terms of what they call the *lost sequence*.

```
int f(int i) {
    if (i == 0) return -3;
    if (i == 1) return -1;
    if (i == 2) return 4;
    if (i == 3) return 8;
    if (i == 4) return 15;
    return f(i-5) + f(i-3) + f(i-1);
}

int main() {
    int n;
    while (cin >> n) {
        for (int i = 0; i < n; ++i) cout << f(i) << " ";
        cout << "..." << endl;
    }
}
```

Unfortunately, this program is much too slow. Help Dharma Iniciative to save the world by writing an equivalent but much faster program.

Input

Input consists of a sequence of natural numbers between 0 and 45.

Output

Print the same as the given program.

Sample input 1

```
8
10
```

Sample output 1

```
-3 -1 4 8 15 16 23 42 ...
-3 -1 4 8 15 16 23 42 66 104 ...
```

Problem information

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