Perfection in Numbers[1]

Filename: perfect

A positive integer is perfect if it equals the sum of its proper divisors (all of its divisors except itself). A number is defective if the sum of is proper divisors is less than the number, and is abundant if the sum of the factors is greater than the number.

For example, 28 is perfect since $1 + 2 + 4 + 7 + 14 = 28$,
14 is defective since $1 + 2 + 7 < 14$,
and 12 is abundant since $1 + 2 + 3 + 4 + 6 > 12$.

The Problem

Determine whether or not a given integer is perfect, defective or abundant.

The Input

The first line of the input file will contain a single positive integer, t $(t \leq 100)$, representing the number of input cases. The following t lines will contain the test cases, one per line. Each test case will be a single positive integer, n $(2 \leq n \leq 10^{12})$ on a line.

The Output

For each input case, output one of the following three strings: "perfect", "defective" or "abundant", on a line by itself depending on the status of the corresponding input.

Sample Input

```
3
28
14
12
```

Sample Output

```
perfect
defective
abundant
```

[1] This problem was taken from the 1988 UCF High School Programming Contest. Only the bounds and output format were changed.