

CHILDRENSDAY

National Children's Day in Thailand is observed on the *second Saturday* of January each year.

Given a year, determine the date in January that corresponds to National Children's Day of that year. For example,

- In 2024, National Children's Day was on January 13.
- In 2025, it was on January 11.
- In 2026, it will be on January 10.

It could be important to be aware of the leap year rules. A year has 366 days (a leap year) if

- it is divisible by 400, or
- it is divisible by 4 but not divisible by 100.

Otherwise, the year has 365 days.

Input

The first line contains an integer N ($1 \leq N \leq 100$), the number of years. Each of the next N lines contains a single integer Y_i ($2024 \leq Y_i \leq 3000$), representing the year.

Output

For each year, find the date in January on which National Children's Day falls. Output the sum of the dates from all years in the input.

Example

Input	Output
3 2024 2025 2026	34