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Problem A. World Cup

Input file:	standard input
Output file:	standard output
Time limit:	1 second
Memory limit:	1024 megabytes

The Chinese team is participating in the FIFA World Cup 4202, which includes 32 teams, and the Chinese team has number 1, each with a unique strength value a_i. Matches between any two teams will have a winner, which is the team with the higher strength value winning.

In the group stage, the 32 teams will be divided into 8 groups, each group consists of 4 teams and plays a round-robin tournament in which each team is scheduled for three matches against other teams in the same group. The number of winning matches is used to rank the teams in a group. The top two teams from each group will advance to the knockout stage.

The knockout stage is a single-elimination tournament in which teams play each other in one-off matches. It begins with the round of 16, in which the first place of each group plays against the second place of another group. This is followed by the quarter-finals, the semi-finals, and the final.

Specifically, denote A1 as the first place of group A, C2 as the second place of group C, and so on. The matches in the round of 16 are (1).A1 vs B2, (2).C1 vs D2, (3).E1 vs F2, (4).G1 vs H2, (5).B1 vs A2, (6).D1 vs C2, (7).F1 vs E2, (8).H1 vs G2.

Then, the matches of the quarter-finals are between (9).winners of (1) and (2), (10).winners of (3) and (4), (11).winners of (5) and (6), (12).winners of (7) and (8).

The semi-finals are between (13).winners of (9) and (10), (14).winners of (11) and (12).

And the final is between (15).winners of (13) and (14).

Given the strength of every team $a_1, \ldots, a_{32}$, suppose you can manipulate the grouping scheme, what is the best possible result for the Chinese team? Specifically, output

- `1` if the Chinese team wins the championship,
- `2` if the Chinese team loses in the final,
- `4` if the Chinese team loses in the semi-final,
- `8` if the Chinese team loses in the quarter-final,
- `16` if the Chinese team loses in the round of 16,
- `32` if the Chinese team does not advance to the knockout stage.

Input

Each test contains multiple test cases. The first line contains the number of test cases $t (1 \le t \le 10^3)$. The descriptions of the test cases follow.

The only line of a test case contains 32 different integers, indicating $a_1, \ldots, a_{32} (1 \le a_i \le 10^9)$.

Output

For each test case, print one line with one integer indicating the answer to the question.

Example

standard input	standard output
1 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1	1