Dos Date (all languages available)

Wersja polska

English version

In DOS, current date is stored in encoded form to reduce the space. Date is encoded in a single integer number. The binary form of the number can be divided to decode the date parameters.

Date is a sequence of 23 bits. First 14-bits for year, next 4-bits for month and finally 5 bits for day.

e.g., 12 February 1990 can be encoded as -

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1990 02 12 ---> (11111000110 0010 01100) Binary Form ---> (1018956) Decimal Form
```

Your task is simple. You only will have to decode date from the given decimal encoded form.

Input

The input consists of **N** cases (0 < N < 1001). The first line of the input contains only positive integer **N**. Then follow the cases. Each case consists of exactly one line with one positive integer **X**. This integer **X** is the encoded form which is to be decoded.

X will fit in Integer(C Int) range.

Output

Output consist of exactly N lines of decoded form.

Example

Input:

5

1024275

1029012

1017036

903863

802507

Output:

19 August 2000 20 December 2009 12 June 1986 23 May 1765 11 June 1567

Author of this problem is A@K@\$h J0h@rl.