

CLASS NOTES

CHAPTER: CALENDAR

Calendar helps us determine the day, date, week and month of a particular year. The main ideas are ordinary years, leap years, odd days and decoding the day of the week.

1. Structure of a Calendar

Type of Year	Number of Days	Number of Weeks	Odd Days
Ordinary Year	365	52 weeks + 1 day	1
Leap Year	366	52 weeks + 2 days	2

Odd Day: The extra day(s) left after complete weeks are counted as odd days. Since 7 days = 1 complete week, we always take the remainder after division by 7.

2. Number of Odd Days in a Month

Month	Days in an Ordinary Year	Odd Days
January	31	3
February	28	0
March	31	3
April	30	2
May	31	3
June	30	2
July	31	3
August	31	3
September	30	2
October	31	3
November	30	2
December	31	3

Memory Trick: 31 days → 3 odd days; 30 days → 2 odd days; 28 days → 0 odd days; 29 days → 1 odd day.

3. Leap Year

A leap year has **366 days**. Normally, a year is a leap year if it is divisible by 4.

Important century rule: A century year (such as 100, 200, 300, 1900, 2000) is a leap year only when it is divisible by 400. Therefore, 2000 is a leap year, while 1900 is not.

Quick test: For an ordinary year, check divisibility by 4. For a century year, check divisibility by 400.

4. Decoding the Day of the Week

A week contains 7 days. Therefore, when the total number of odd days is divided by 7, the remainder tells us how far the required day shifts through the week.

Remainder	Day shift
0	No shift
1	1 day
2	2 days
3	3 days
4	4 days
5	5 days
6	6 days

5. Odd Days in a Century

In 100 years, there are 76 ordinary years and 24 leap years (because $100 \div 4 = 25$, but the century year 100 is not divisible by 400).

Total odd days = $(76 \times 1) + (24 \times 2) = 76 + 48 = \mathbf{124 \text{ odd days}}$.

$124 \div 7$ leaves remainder **5**. Hence, 100 years contribute **5 odd days**.

6. Century Odd-Day Pattern

Century	Odd Days	Day Pattern*
100	5	Friday
200	3	Wednesday
300	1	Monday
400	0	Sunday
500	5	Friday
600	3	Wednesday
700	1	Monday
800	0	Sunday
900	5	Friday
1000	3	Wednesday
1400	3	Wednesday
1600	0	Sunday
1700	5	Friday

2000	0	Sunday
2100	5	Friday

*The listed day pattern follows the century reference convention used in the source notes. For an actual date calculation, also account for the exact date and the leap-year status of the intervening years.

7. Worked Example: 31 December 100 A.D.

Step 1: Consider 100 years.

Step 2: Leap years = 24; ordinary years = 76.

Step 3: Odd days = $(76 \times 1) + (24 \times 2) = 124$.

Step 4: $124 \div 7$ gives remainder 5.

Conclusion: The reference table gives **Friday** for 31 December 100 A.D.

8. Quick Recall Sheet

Fact	Remember
1 week	7 days
Ordinary year	365 days = 52 weeks + 1 day
Leap year	366 days = 52 weeks + 2 days
31-day month	3 odd days
30-day month	2 odd days
28-day February	0 odd days
29-day February	1 odd day
100 years	5 odd days
400 years	0 odd days

Exam Tip: Always separate the calculation into years → months → days. Convert each part into odd days, add them, divide the total by 7, and use the remainder to decode the weekday.