

DAY 31

Tricky

MCA CET 2025

REASONING

**CLOCK &
CALENDAR**



INEXORABLE
MAH MCA CET 2025
FREE CRASH COURSE



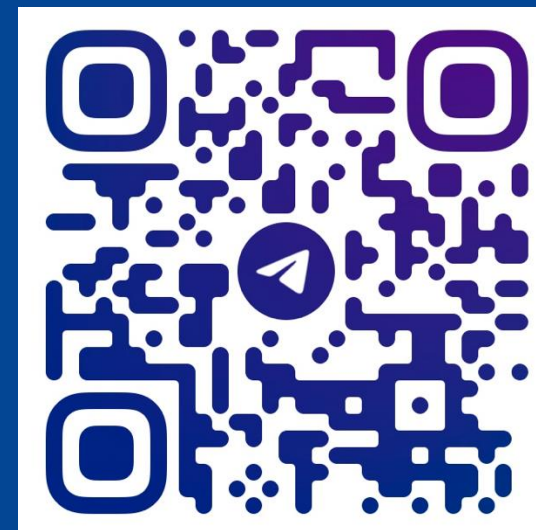


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Clock

Angle between hour and minute hand

$$= \text{Angle} = \left| \left(\frac{11}{2} \right) M - \underline{30 H} \right|$$

$$\begin{array}{r} 11 \times 10 - 30 \times 10 \\ \hline 110 - 300 \end{array}$$

$$\begin{array}{r} 55 - 300 \\ \hline \end{array}$$

$$\underline{\underline{245}}$$





Calendar

- Ordinary Years

365 days.

An ordinary year (also called a common year) is a year that has 365 days. This is the standard number of days in a year. Most years are ordinary years.



Calendar

1600
4
400

100, 200, 300, 400, 500, 600

• Leap Years

A leap year, on the other hand, occurs every four years and has 366 days. The extra day is added to the month of February, making February 29 days long instead of the usual 28 days. The purpose of a leap year is to help synchronize the calendar year with the solar year, or the length of time it takes for Earth to orbit the sun, which is about 365.2422 days.

• How to Identify a Leap Year:

A year is a leap year if:

It is divisible by 4, and

It is not divisible by 100, unless

It is also divisible by 400.

years divisible $\boxed{4/400}$

Century
= 100 years



Odd Days

$$\frac{9}{7} = \text{Remainder} = \textcircled{2}$$

week
↓
 $7 / \textcircled{2} \leftarrow \text{odd days.}$

The number of days more than to complete a week is called odd days.

It is simply the remainder you get when you divide any given number of days by 7.

For e.g. How many odd days are there in 9 days?



Odd Days in a Year

- Ordinary Year (365 Days)

→ 1 day

$$\frac{365}{7} = 52 / \text{Remainder} = \underline{\underline{1}}$$

- Leap Year (366 Days)

→ 2 day

$$\frac{366}{7} = 52 / \text{Remainder} = 2$$



Odd Days in Century Years

- 100 Century = 5 Days
- 200 Century = 3 Days
- 300 Century = 1 Day
- 400 Century = 0 Day

0 days
~~1600~~ + 100 → 5 days
400

0 2200
~~2000~~ + 200 → 3
400



Important Note for Days of Century

First Day: It cannot be Wednesday, Friday or Sunday

Last Day: It cannot be Tuesday, Thursday or Saturday



→ 1st Jan '17 → Sunday.
→ 1st Jan '18 → Monday

If it was a Sunday on 1 January 2017, what was the day
of the week on 31 December 2017?

- 1 Jan 2018 → Sunday
- (a) Tuesday
 - (b) Monday
 - (c) Sunday
 - (d) Friday



$\begin{array}{l} \underline{1^{\text{st}} \text{ Jan}} \quad \underline{2016} \quad \text{Friday} \\ \downarrow +2 \\ \underline{1^{\text{st}} \text{ Jan}} \quad \underline{2017} \quad \text{Sunday} \end{array}$

2016 \Rightarrow leap. 2 odd days.

If it was a Friday on 1 January 2016, what was the day of the week on 31 December 2016?

- (a) Saturday
- (b) Friday
- (c) Monday
- (d) Sunday

Saturday.



$$2013 \Rightarrow \frac{2000}{400} + \overset{0}{\textcircled{12}} + [\text{Days of '13}]$$

What was the day of the week on 15 August 2013?

Sun - 0

Mon - 1

Tue - 2

Wed - 3

Thu - 4

Fri - 5

Sat - 6

(a) Thursday

(b) Monday

(c) Wednesday

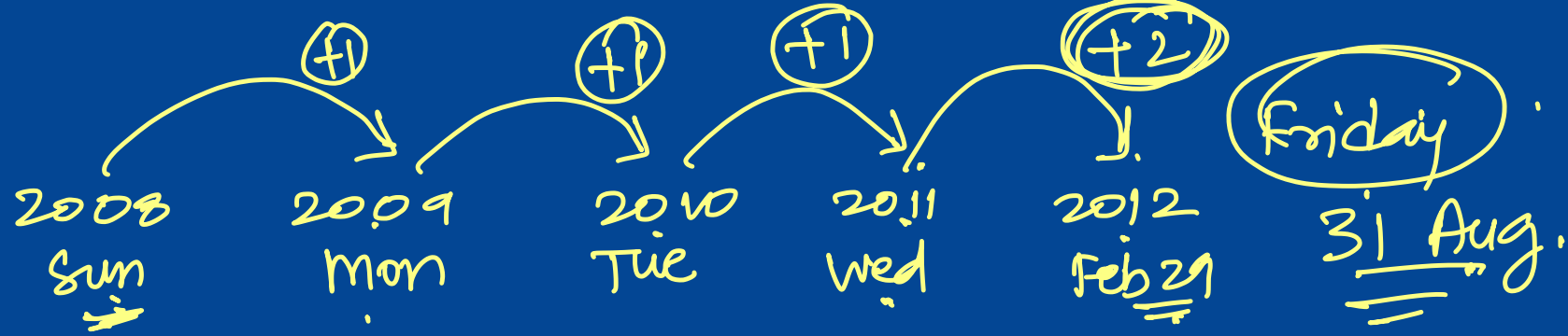
(d) Tuesday

$\left. \begin{array}{l} 2004 \\ 2008 \\ 2012 \end{array} \right\} \text{leap years} = 3 \times 2 = \underline{6}$
 $\text{ordinary years} = 9 \times 1 = \underline{9}$

$$1 + \overset{\text{J}}{3} + \overset{\text{F}}{0} + \overset{\text{M}}{3} + \overset{\text{A}}{2} + \overset{\text{May}}{3} + \overset{\text{June}}{2} + \overset{\text{July}}{3} + 15$$

$$= \frac{32}{7} = \text{Remainder} = \textcircled{4}$$

$$\frac{\textcircled{15}}{7}$$



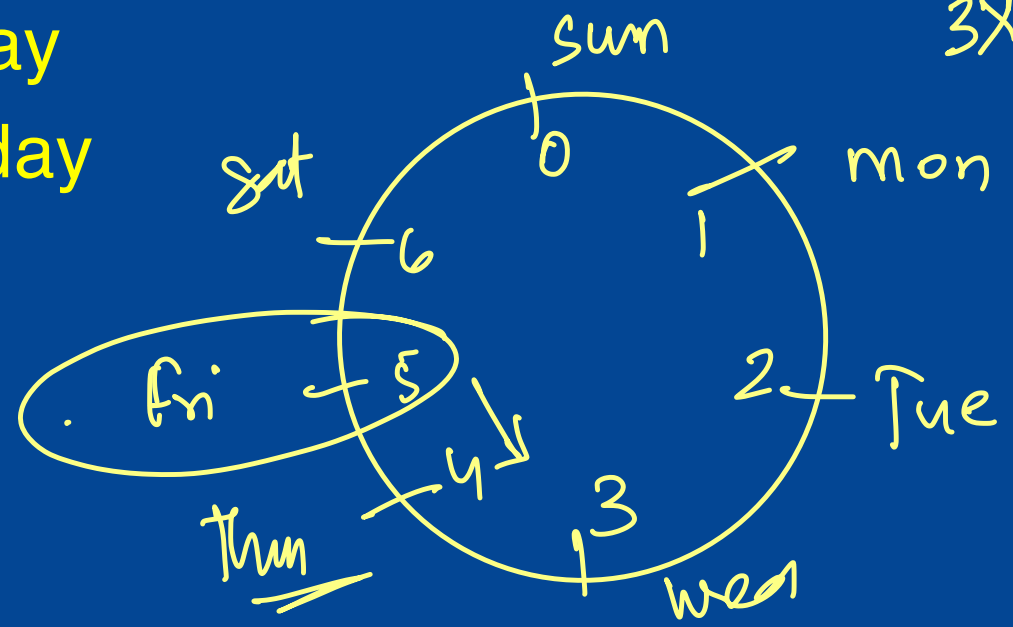
If 31 August 2008 was Sunday then what was the day of the week on 30 August 2012?

- (a) Friday
- (b) Wednesday
- (c) Tuesday
- (d) Thursday

31st Aug 2008 → 31st Aug 12

$3 \times 1 + 2 = 5$

ofc =





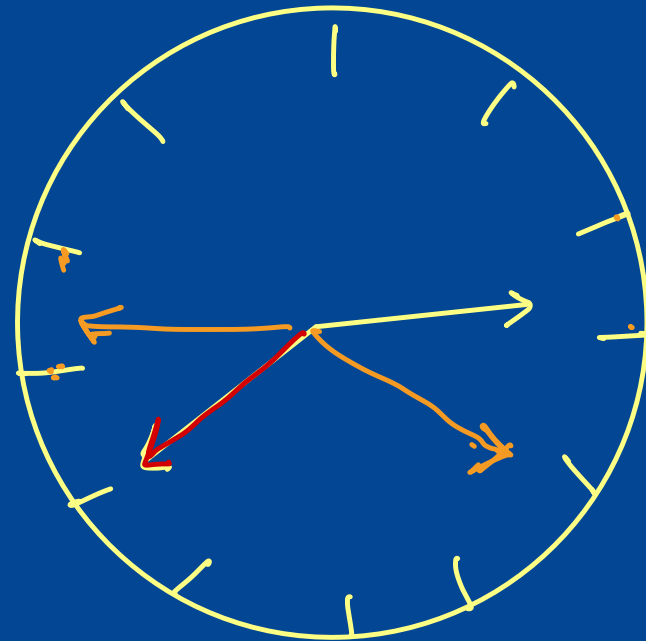
Find the mirror image of the clock when the time is 02:40

~~A. 09:20~~

B. 10:22

C. 09:25

D. 09:22





19 July 2000
Wednesday

$$\begin{array}{r} \text{leap} = 3 \times 2 = 6 \\ \text{ordinary} = 9 \times 1 = 9 \\ \hline 15 \text{ days} / 7 \end{array}$$

19 July 2012
Thursday (4)
2004 2008 2012

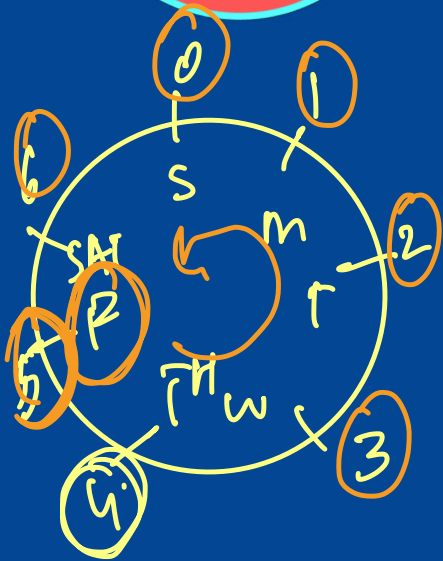
If 19 July 2000 was a Wednesday, then what would be the day of the week on 15 June 2012?

- (a) Wednesday
- (b) Thursday
- (c) Saturday
- ~~(d) Friday~~

Remainder = 1

Thursday \rightarrow $\frac{34 \text{ days}}{7}$

Thursday + 6





Wed.
29 Jan
2003



Thurs.
29 Jan
2004

Leap
F

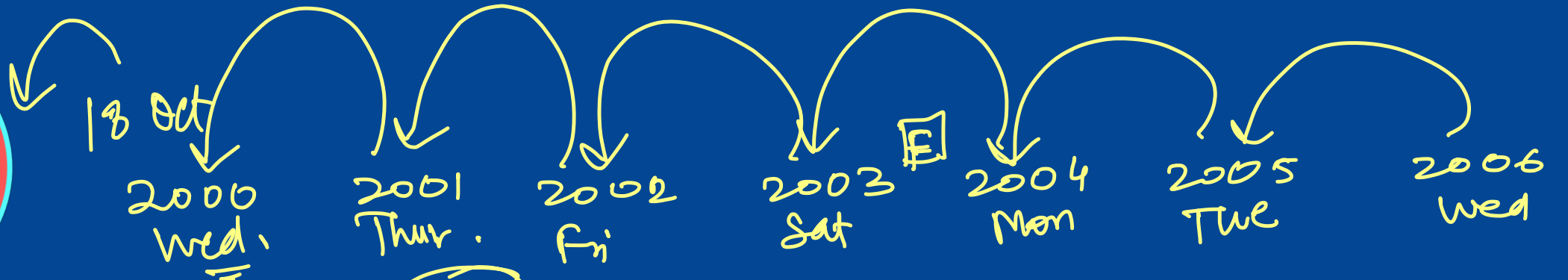


Saturday
29 Jan
2005

If 29 January 2003 is a Wednesday, then what day of the week will be 26 February 2005?

- ~~(a) Saturday~~
- (b) Sunday
- (c) Thursday
- (d) Friday

$$\underline{\text{Saturday}} + \frac{28}{7} = 0$$



If 18 October 2006 was Wednesday, then what was the day of the week on 17 October 2000?

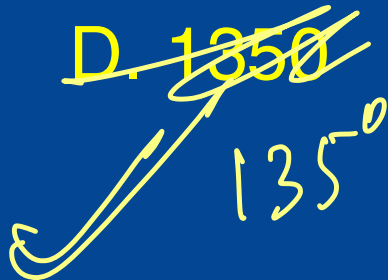
- (a) Tuesday
- (b) Wednesday
- (c) Monday
- (d) Sunday



$$\frac{11}{2} \text{ M} - 30 \text{ H} = \frac{11}{2} \times 30 - 30 \times 10$$
$$165 - 300$$

Find the angle between the hands of the clock when the time is 10:30.

- A. 160°
- B. 120°
- C. 180°
- D. 135°



135



Check which of the following years are leap years.

~~A. 1800~~ ← 400

B. 1345 ✗

C. 1678 ✗

D. None of these

$$\frac{1678}{4} = 419.5$$



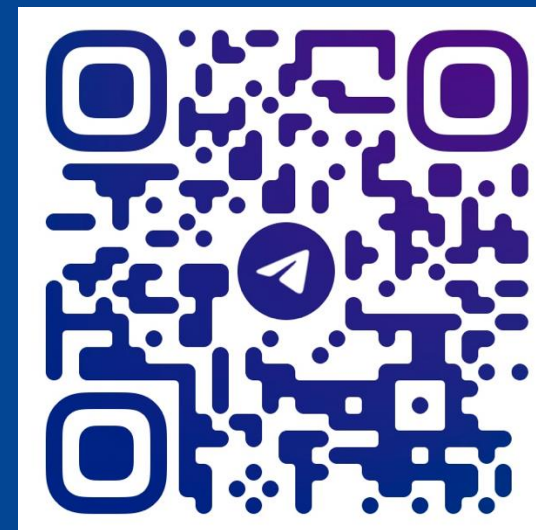
Worksheet

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