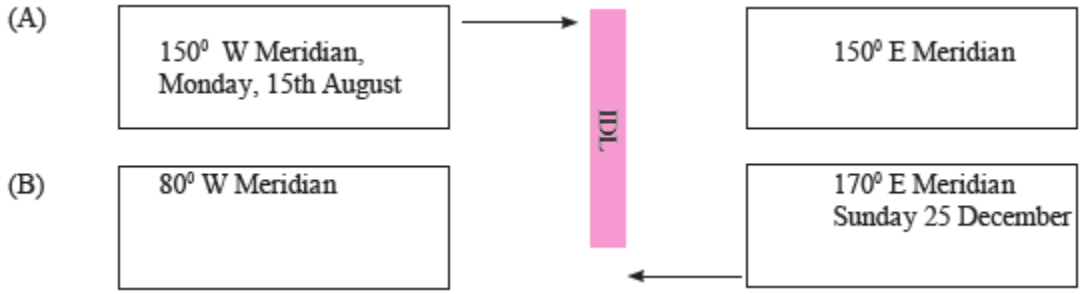
International Date Line

Exercise

Q. 1. Two boxes in different hemispheres are given in the following diagram. The IDL passes through both the boxes. In one box, the meridian, day and date is given. Find the day and date for the other box.



Answer : The earth rotates 360° in 24 hours, which means 15° in 1 hour.

360° = 24hours, then 360°/24hours = 15°.

Therefore in 1°, the earth takes 4 minutes.

60minutes/15° = 4 minutes. 1° = 4 minutes

The earth moves from west to east, therefore from 0° to east the time will be ahead and from 0° to the west the time will be behind

(A) When the 150° W Meridian is Monday and 15th August then 150° E Meridian is Tuesday and the date will be 16th August.

• This is because from moving from west to east the change in 1° will add 4 minutes to the area.

• Then the movement from 150° W Meridian to 150° E Meridian, the change is 300°. Therefore the 150° E is 20hrs ahead.

• According to the International Date Line (IDL), the person travelling from West to East should add a day. Therefore 150° E will be 16th August, Tuesday.

(B) When the 170° E Meridian is Sunday 25th December then 80° W Meridian will be 24th December Saturday.

• The movement from east to west will reduce the time. By moving 1° there will be a decrease in 4 minutes.

• Then the movement from 170° E Meridian to 80° W Meridian will be 16 hrs behind.

• But according to International Day Line (IDL) person travelling from west to east should reduce a day. Therefore the date at 80° W meridian will be 24thDecember, Saturday.

Q. 2 A. Select the correct option :

While crossing the IDL, a person will have to add one day when travelling from

A. East to West
B. West to East
C. South to North
D. North to South

Answer : The movement from the prime meridian towards East the time will be ahead. The International Date Line is at 180°, the movement from IDL to East the time will be ahead. That is any movement from 0° to 180° Eastward the date and time will be ahead. Therefore according to the International Date Line, any person travelling from East to West, he should add one day while travelling.

Q. 2 B. Select the correct option :

If it is Wednesday 10 a.m. at 15° E meridian, then what will be the time at IDL.
A. Wednesday 6 a.m.

B. Wednesday 9 p.m.
C. Thursday 2 p.m.
D. Thursday 6 p.m.

Answer : The International Date Line is at 180˚. At 15˚E, the time is 10 A.M on Wednesday.

The earth rotates 360° in 24 hours, which means 15° in 1 hour.

360° = 24hours, then 360°/24hours = 15°.

Therefore in 1° the earth takes 4 minutes.

60minutes/15° = 4 minutes. 1° = 4 minutes

Movement from 15˚E to 180˚E = 165˚

Change in time = 165*4 = 660 minutes = 660/60 = 11 hours

Time at IDL = 9 p.m

Q. 2 C. Select the correct option :

According to the international convention, at which meridian does the day and date change occurs?

A. 0 degree
B. 90 degree E
C. 90degree W
D. 180degree

Answer :

The 180° is the International Date Line. The earth rotates 360° in 24 hours, which means 15° in 1 hour. The movement from the prime meridian 0° to 180° (East or West), the time and changes. If the movement is towards the East, the time and date will ahead than Western areas and if the movement is towards the West, the time and date will be behind. The earth moves from west to east, therefore from 0° to east the time will be ahead and from 0° to the west the time will be behind.

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Q. 2 D. Select the correct option :

At which direction of the IDL does a new day start immediately?

A. East
B. West
C. North
D. South

Answer : The 0° is the prime meridian. The earth rotates 360° in 24 hours, which means 15° in 1 hour. The movement from the Prime Meridian towards the East will be time ahead compared to the Western region. The earth moves from west to east, therefore from 0° to east the time will be ahead and from 0° to the west the time will be behind. Therefore the Eastern countries will be ahead in time and date.

Q. 2 E. Select the correct option :

IDL brings coordination in which of the following?

A. GPS system
B. Defence departments
C. Transportation schedules
D. Determining the hemisphere

Answer : IDL has brought the coordination in most of the services available in the world. The IDL has especially bought major coordination over transportation, international airlines, communication, economic and trade activities. IDL has majorly contributed to unite the world with coordinating with time and date. It helps to keep track of all the calculations of the day and time in different time zones.

Q. 3 A. Give geographical reasons

IDL is proving to be very useful in today's times

Answer : The International Date Line was constructed in 1884 to change the date and time according to the global travelling. But unlike the prime meridian, the IDL is not a straight line and does not pass through the land. International Date Line is being very useful in today's time. IDL has brought the coordination in most of the services available in the world. The IDL has especially bought major coordination over transportation, international airlines, communication, economic and trade activities. IDL has majorly contributed to unite the world with coordinating with time and date. It helps to keep track of all the calculations of the day and time in different time zones. It is also important in today's modern era and rapidly happening global developments. Because of the IDL only we are able to calculate the accurate time and date in different spheres of the world.

Q. 3 B. Give geographical reasons

The day starts in the Pacific Ocean on the earth

Answer : The sun travels from east to west and the earth rotates from west to east. The eastern side of the world starts with the Pacific Ocean. It is the largest ocean in the earth and is divided into North Pacific Ocean and South Pacific Ocean by the equator. As the earth rotates from east to west, sunrays enter the ocean from there indicating the start of the day.

Q. 4 A. Write in brief.

What considerations have been deciding while making the IDL?

Answer : The crossing of the 180-degree prime meridian can result in the change of time zone. Thus some precautions have to be taken to avoid the confusions in the time zones. Thus the date and time may have to be changed to incorporate this. This has to be made by considering the Greenwich 180 degree prime meridian. Two precautions have to be considered while doing this-

• **The direction of travel-** The sun travels from east to west and the earth rotates from west to east. Thus the countries in the west, 12.00 at midnight is the end of the day and the countries of the east, it is the start of the day. This has to be considered.

• **Current day and date-** When we travelling across the meridian, the day and the date changes. While travelling from east to west, one day has to add to the day of commencing the journey. But while travelling from west to east, the same day is considered upon arrival.

Q. 4 B. sWrite in brief.

While crossing the IDL, what changes will you make?

Answer : The crossing of the 180˚prime meridians can result in the change of time zone. Thus some precautions have to be taken to avoid the confusions in the time zones. Thus the date and time may have to be changed to incorporate this. This has to be made by considering the Greenwich 180˚prime meridian. When we travelling across the meridian, the day and the date changes. While travelling from east to west, one day has to be added to the day of commencing the journey. But while travelling from west to east, the same day is considered upon arrival.

Q. 4 C. Write in brief.

Why is the IDL not a straight line like the 180˚meridians?

Answer : The International Date Line was constructed in 1884 to change the date and time according to the global travelling. But unlike the prime meridian, the IDL is not a straight line. If it was a straight line passing evenly through the continents, oceans and islands it would have resulted in the same places lying on both the sides of the meridian having different times. Thus the line was constructed in such a way that the parts of the same region were included in the same time zone. Thus the IDL was not a straight line.

Q. 4 D. Write in brief.

Why doesn't the IDL pass through the land?

Answer :

The International Date Line was constructed in 1884 to change the date and time according to the global travelling. But unlike the prime meridian, the IDL is not a straight

line and does not pass through the land. If it was a straight line passing evenly through the continents, oceans and islands it would have resulted in the same places lying on both the sides of the meridian having different times. Thus the line was constructed in such a way that the parts of the same region were included in the same time zone. Thus the IDL was not a straight line passing through the land.

Q. 4 E. Write in brief.

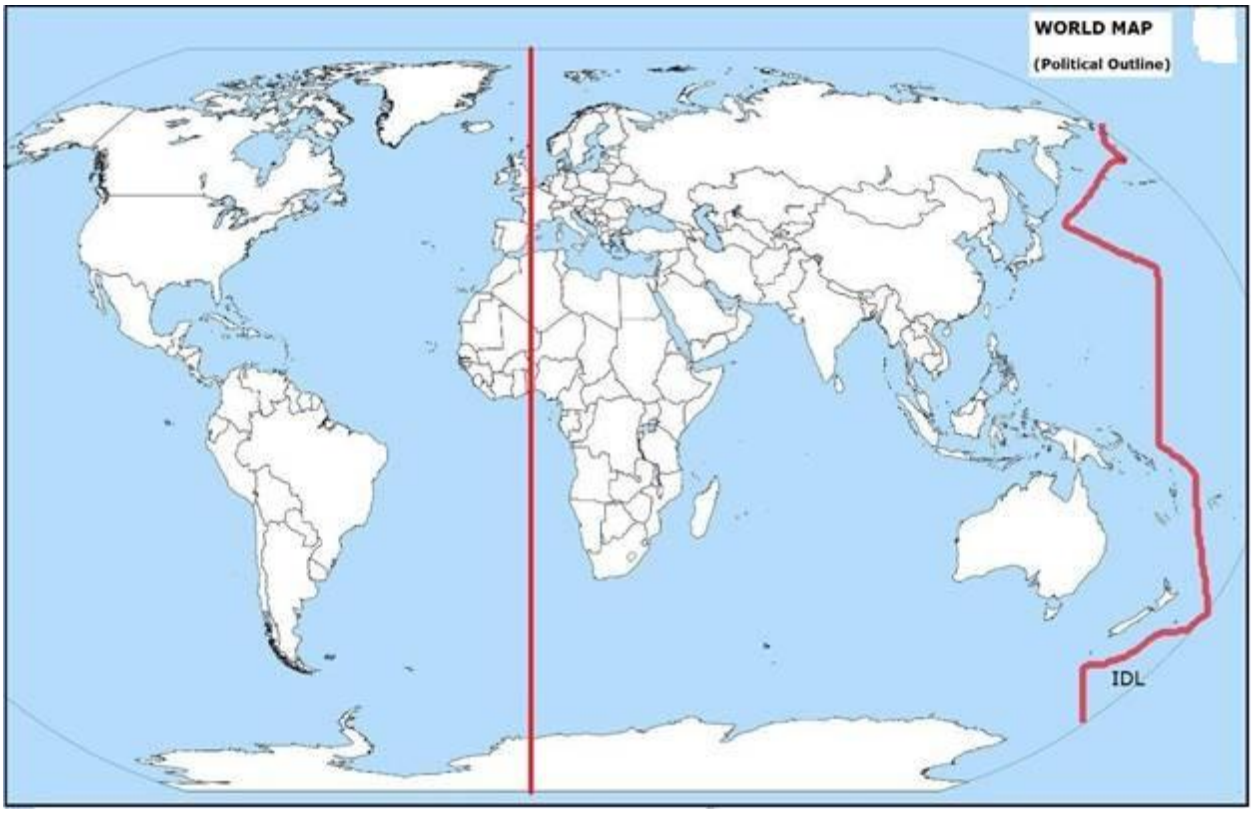
Why is the IDL considered with respect to 180˚meridians only?

Answer : The International Date Line was constructed in 1884 to change the date and time according to the global travelling. The crossing of the 180˚prime meridians can result in the change of time zone. Thus some precautions have to be taken to avoid the confusions in the time zones. Thus the date and time may have to be changed to incorporate this. This has to be made by considering the Greenwich 180˚prime meridian.

Q. 5. Using Atlas, tell which of the following routes the IDL will be crossed and show them.

a. Mumbai-London-New York-Los Angeles-Tokyo
b. Delhi-Kolkata-Singapore-Melbourne
c. Kolkata-Hong Kong-Tokyo-San Francisco
d. Chennai-Singapore-Tokyo-Sydney-Santiago
e. Delhi-London-New York

Answer : The International Date Line was constructed in 1884 to change the date and time according to the global travelling. But unlike the prime meridian, the IDL is not a straight line and does not pass through the land. If it was a straight line passing evenly through the continents, oceans and islands it would have resulted in the same places lying on both the sides of the meridian having different times. Thus the line was constructed in such a way that the parts of the same region were included in the same time zone. Thus the IDL was not a straight line passing through the land.


WORLD MAP
(Political Outline)
IDL