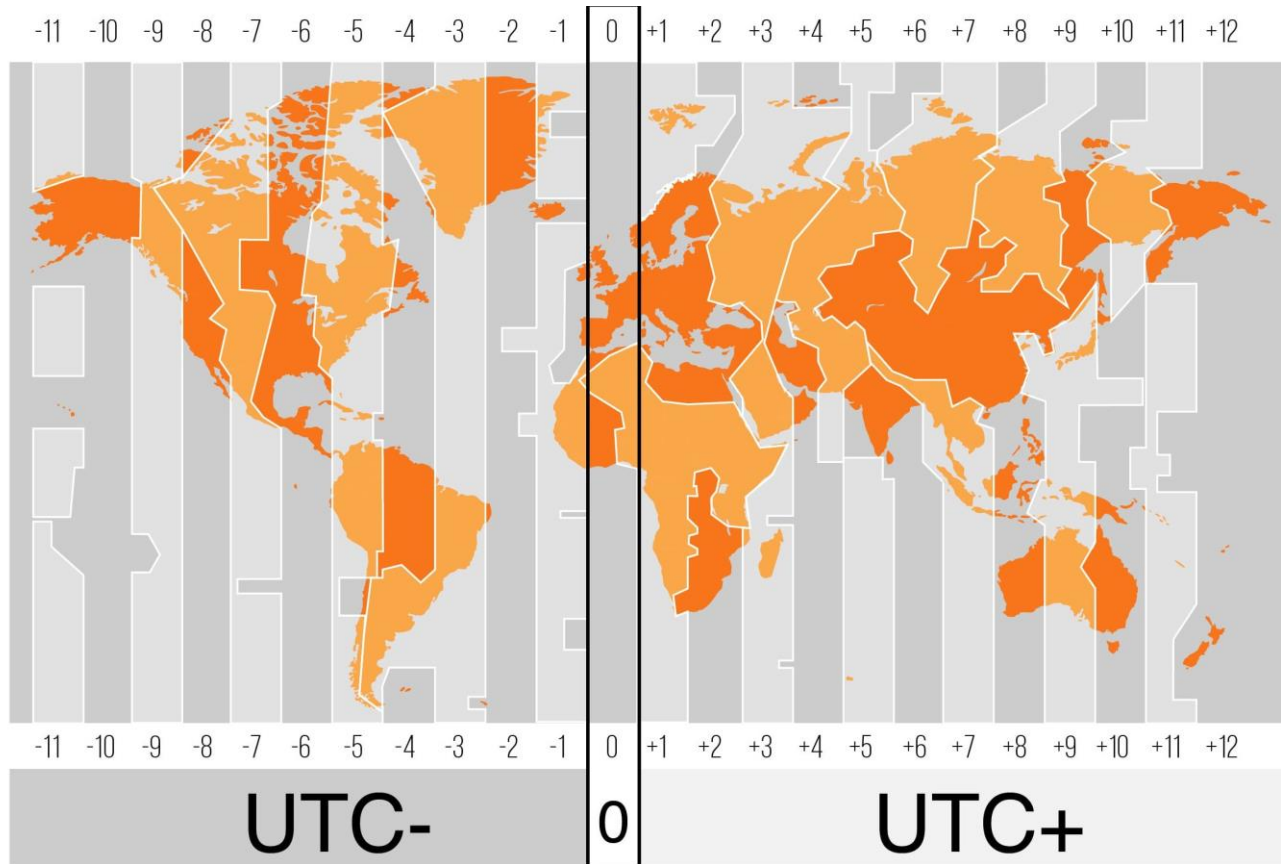


time zone: area of the world with a common time. There are 24 time zones.

time zone



universal time: the time standard, originally measured at **Greenwich**, England, sometimes called Greenwich Mean Time (GMT).

universal time

Iran is in **GMT + 3.30** time zone.



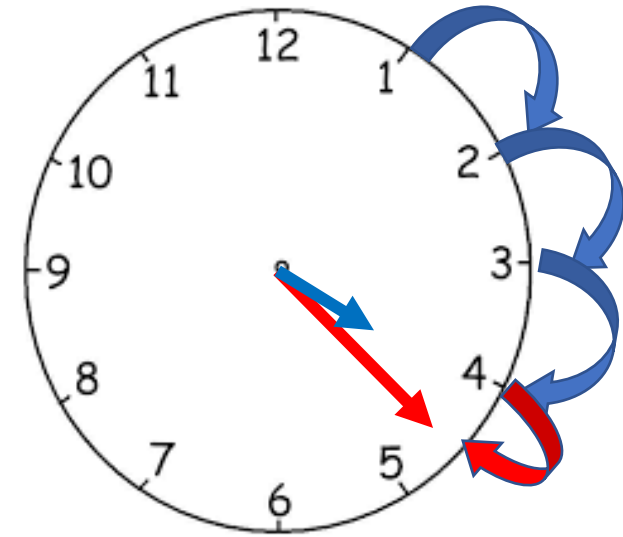
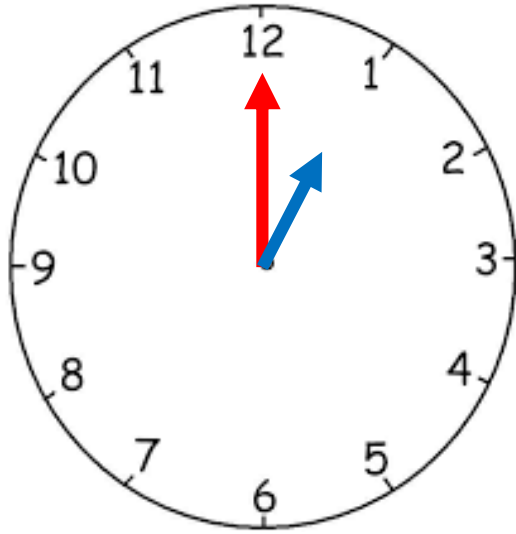
GMT +2

GMT +3

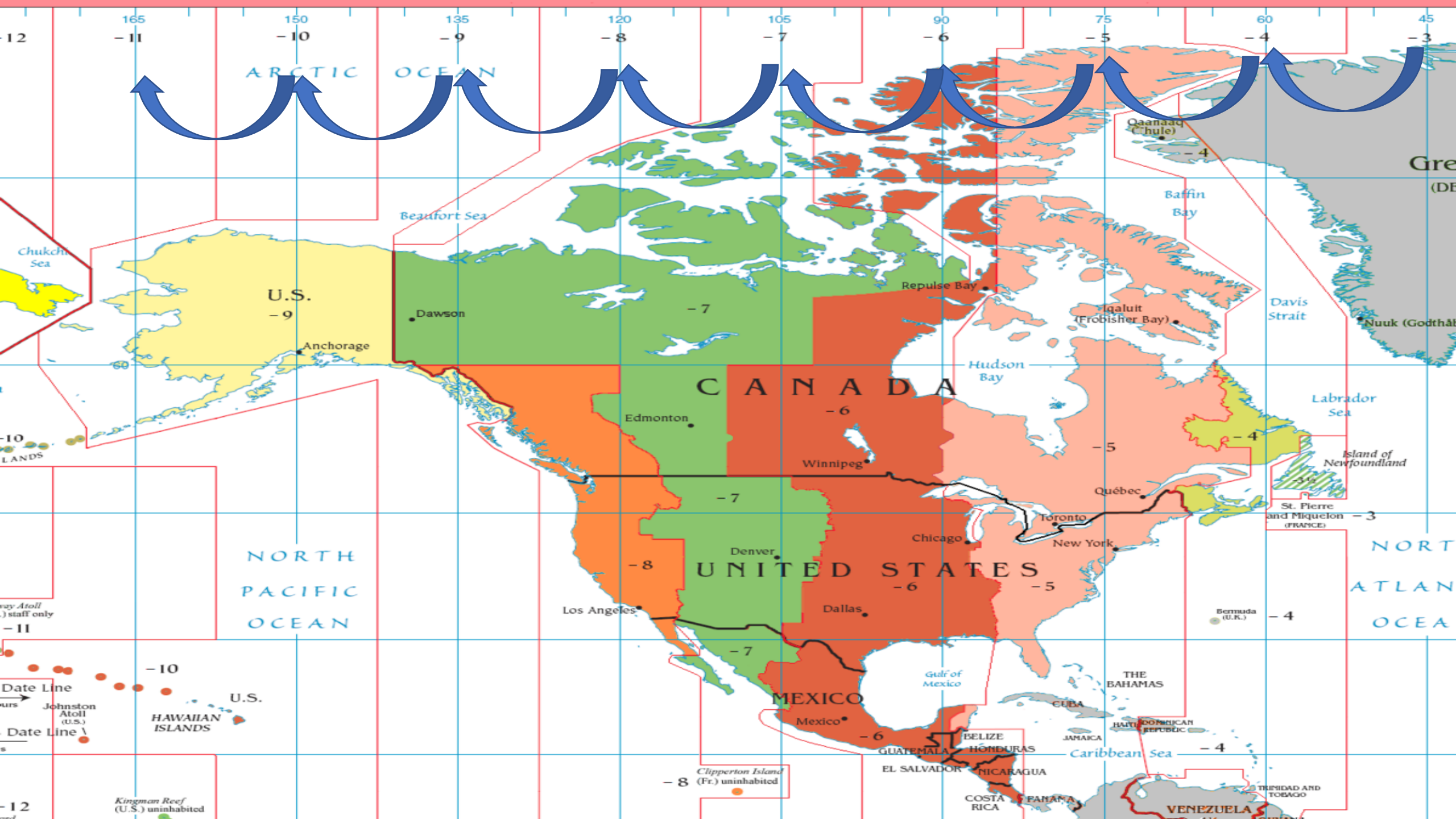
GMT +3.5

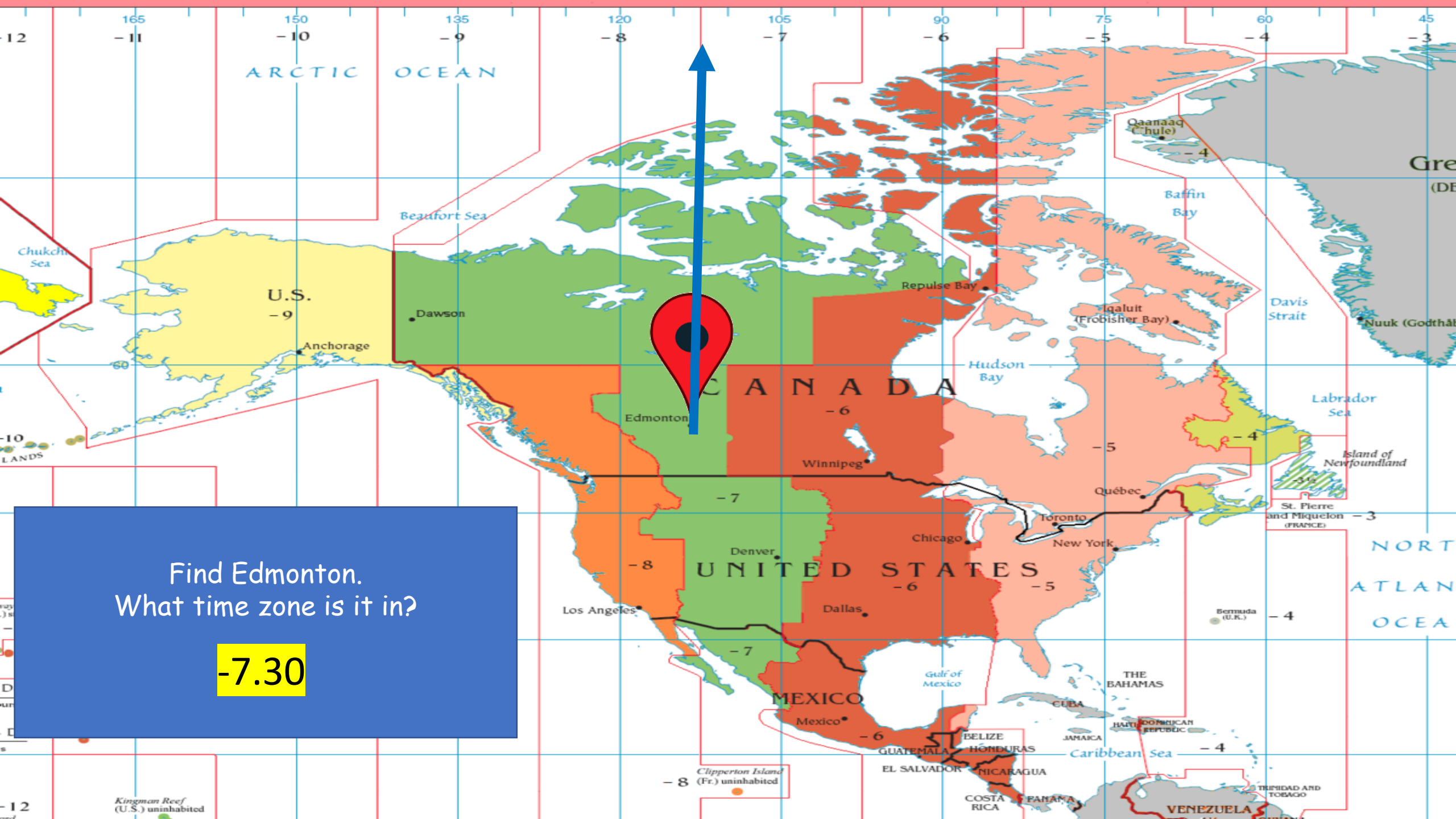
GMT +4

It means when it is 1 o'clock in Greenwich, it is 4.30 in Iran.  
So in Iran, the time is 3 hours 30 minutes **ahead** of GMT.









Find Edmonton.  
What time zone is it in?

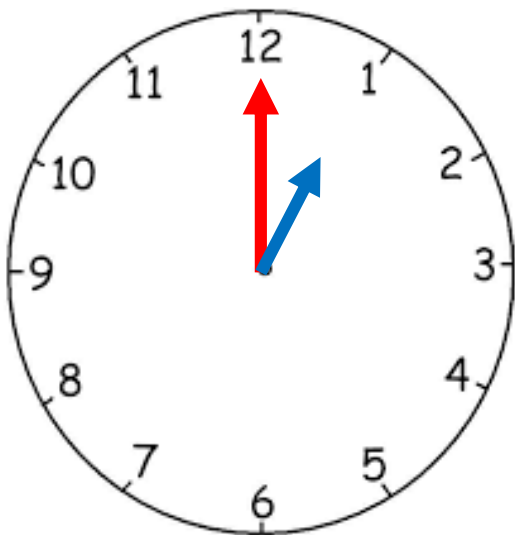
**-7.30**

Edmonton is in -7.30 time zone.

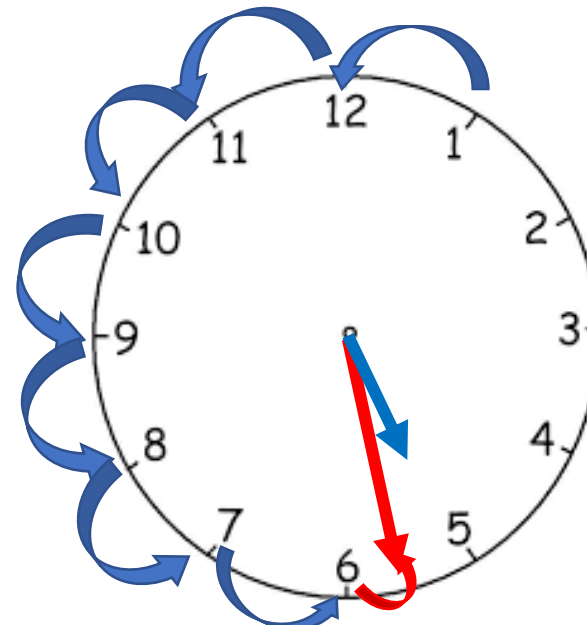
It means (GMT - 7 hours 30 minutes).

In Edmonton, the time is 7 hours 30 minutes **behind** the GMT.

When it is 1 in Greenwich, what time is it in Edmonton?



- 7 hours 30 min





Find New Your.  
What time zone is it in?

-5

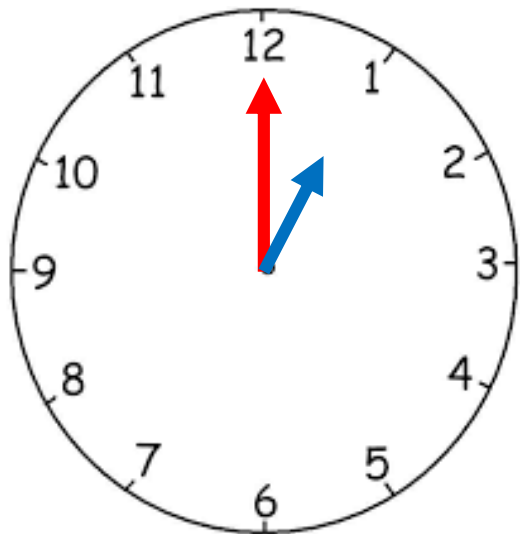


New York is in -5 time zone.

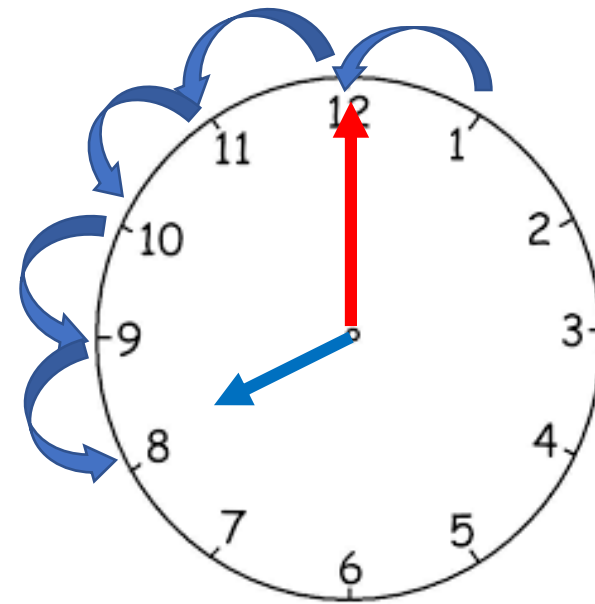
It means (GMT - 5 hours).

In New York, the time is 5 hours **behind** GMT.

When it is 1 in Greenwich, what time is it in New York?



- 5 hours





Beijing

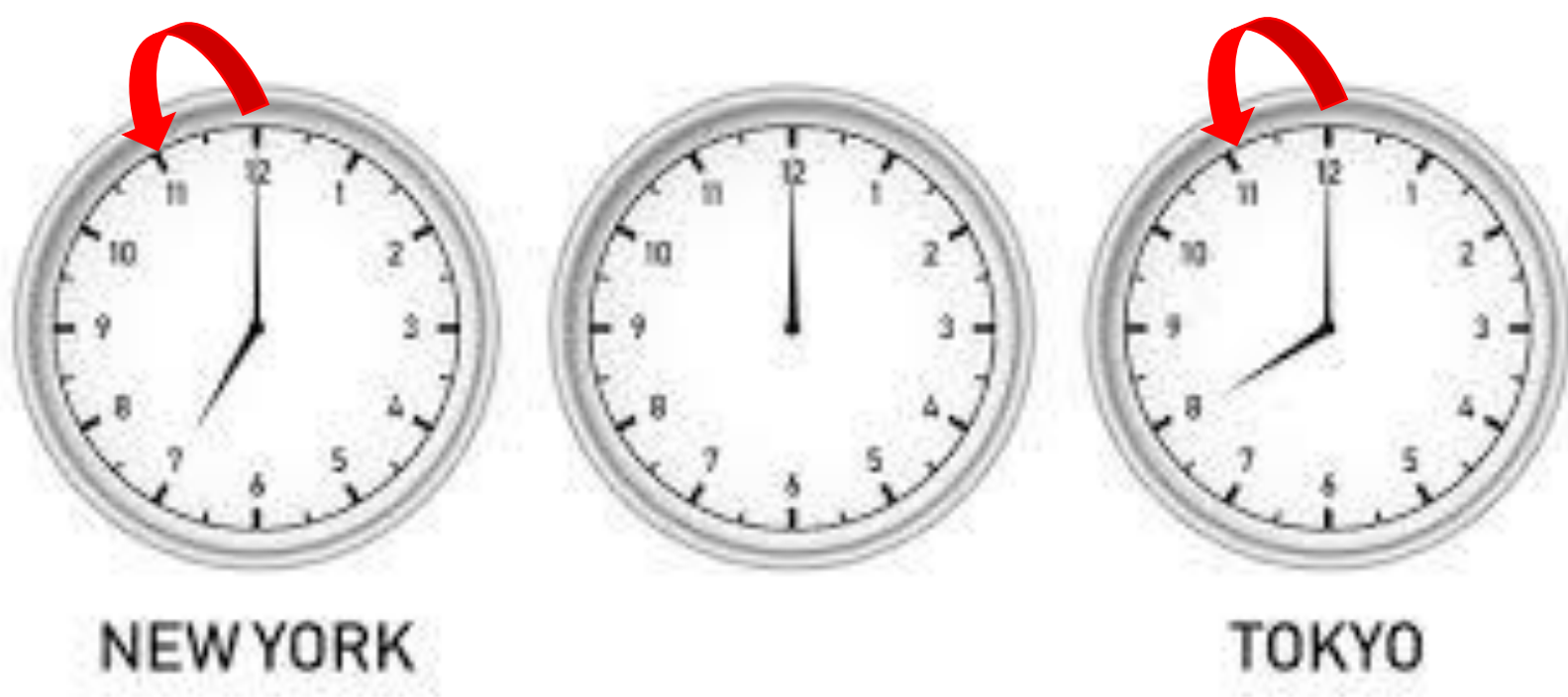


Mexico City



Vancouver

It's 00:00 (midnight) in Greenwich.  
How many hours are these cities **ahead**?



It's 00:00 (midnight) in Greenwich.  
How many hours are these cities **behind**?

How many hours are they

ahead

or

behind?



GMT



Paris +



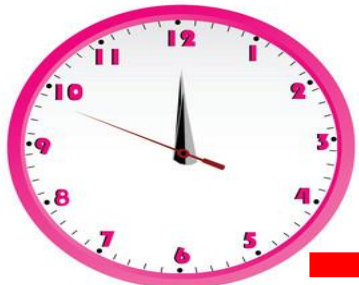
Berlin +



Moscow



Beijing -



Sydney -



Los Angeles -

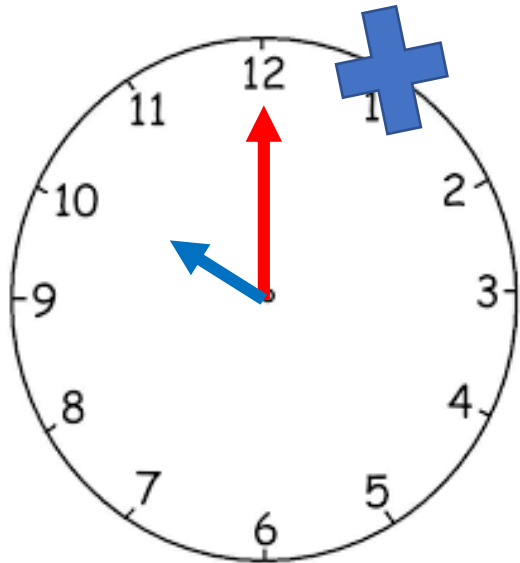


Marco lives in New York.

Jack lives in Morocco.

Morocco is 3 ahead of New York.

When Marco sleeps at 10 p.m. in New York,  
What time is it in Morocco?



$$10 + 3 = 1 \text{ a.m.}$$

# Time Zones (1)

## Let's investigate

The time difference between where Marco and Cody live is 3 hours, Marco's time is ahead of Cody's.

They have a telephone conversation for 1 hour and 18 minutes. Cody puts the phone down at 20:44.

What was the time for Marco  
when he rang?

**22:26**



**Cody: 20:44**

**$20:44 + 3 = 23:44$**

**$23:44 - 1:18 = 22:26$**

**Alavi**

**21st Century Schools**



MATHEMATICS



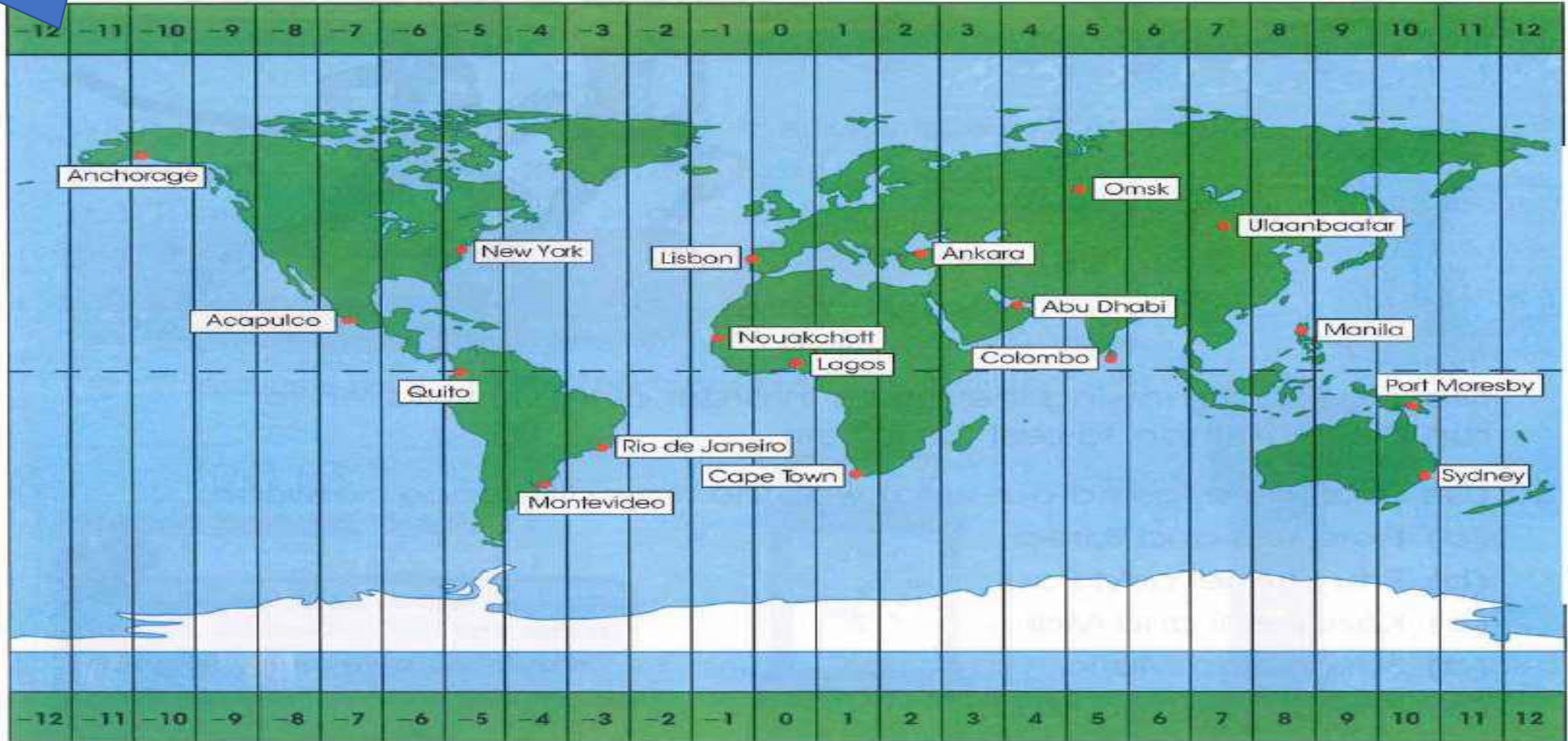
An orange scroll graphic with a dark orange outline and rounded corners. The scroll is unrolled in the center, with the top and bottom edges curled up. The text "Sessions 14/15" is written in white on the unrolled portion.

Sessions 14/15





This map shows *approximately* the time zones around the world. It shows how far ahead or behind the time is in hours from the Universal Time at '0'.



# Why do we have different time zones?





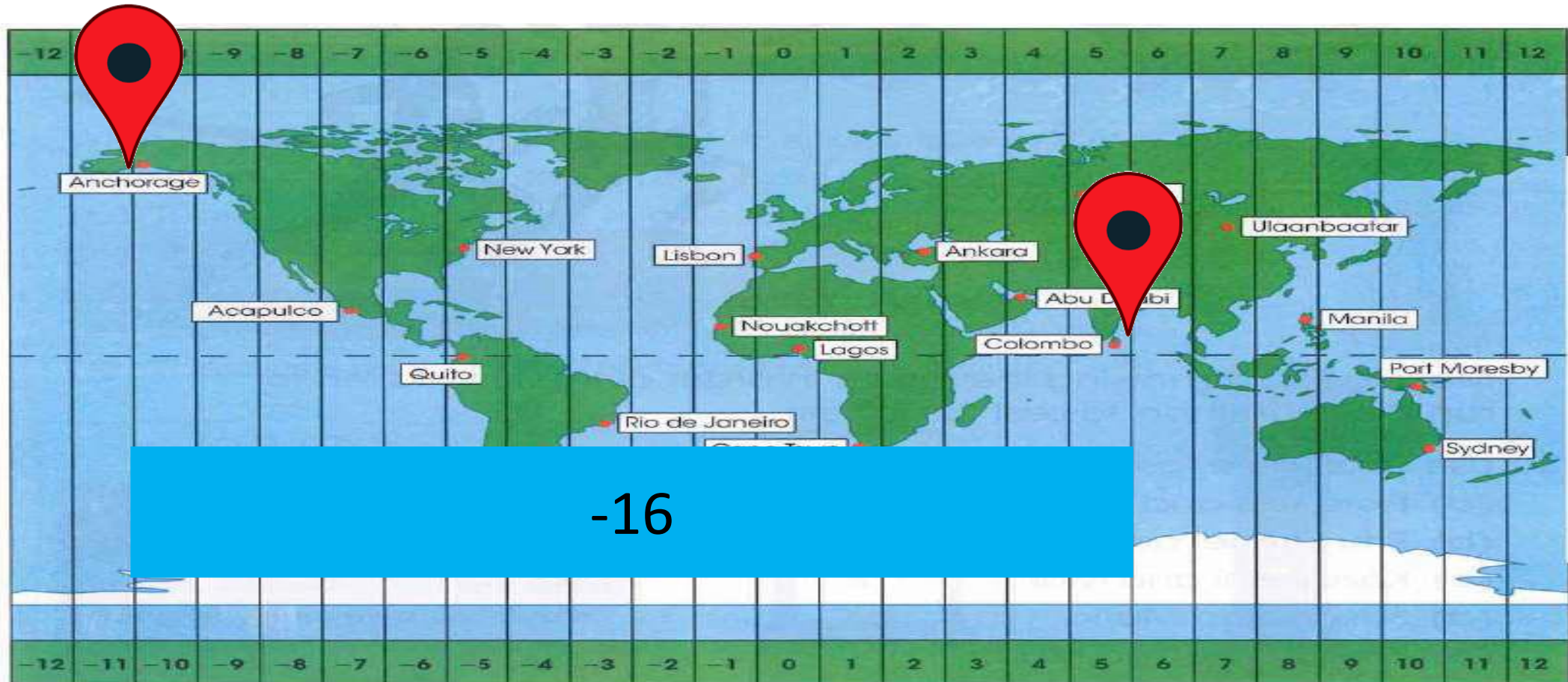
1 What is the approximate time difference in hours between:

- (a) Quito and Lisbon?
- (b) Anchorage and Colombo?
- (c) Cape Town and Ulaanbaatar?
- (d) Nouakchott and Sydney?



1 What is the approximate time difference in hours between:

- (a) Quito and Lisbon?
- (b) Anchorage and Colombo?
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- (a) Quito and Lisbon?
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- (d) Nouakchott and Sydney?

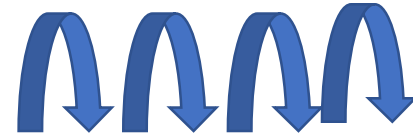




2 Use the map to estimate:

(a) If it was 09:21 in Lagos, what would be the time in Omsk?

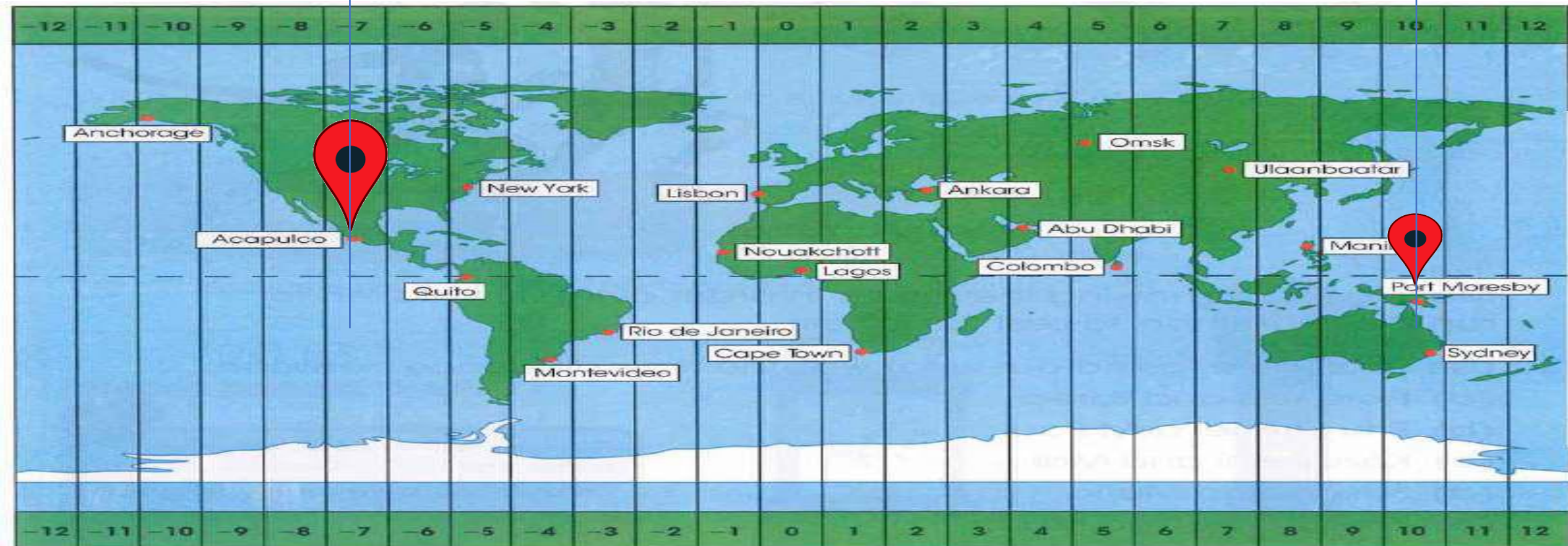
$$9:21 + 4 = 13.21$$





(b) If it was 01:44 in Acapulco, what would be the time in Port Moresby?

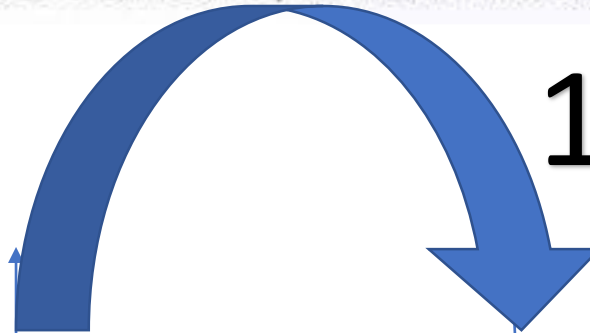
$$1:44 + 17 = 18:44$$





(c) If it was 18:03 in Rio de Janeiro, what would be the time in Ankara?

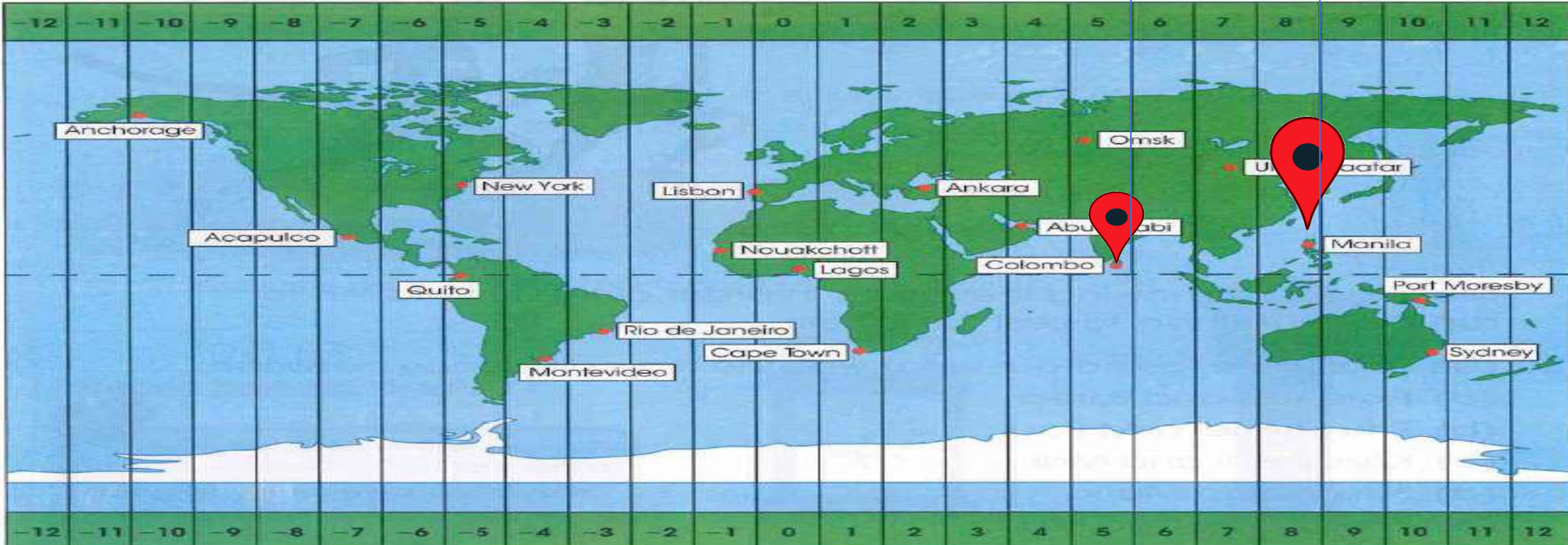
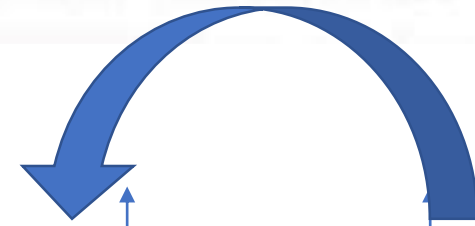
$$18:03 + 5 = 23:03$$



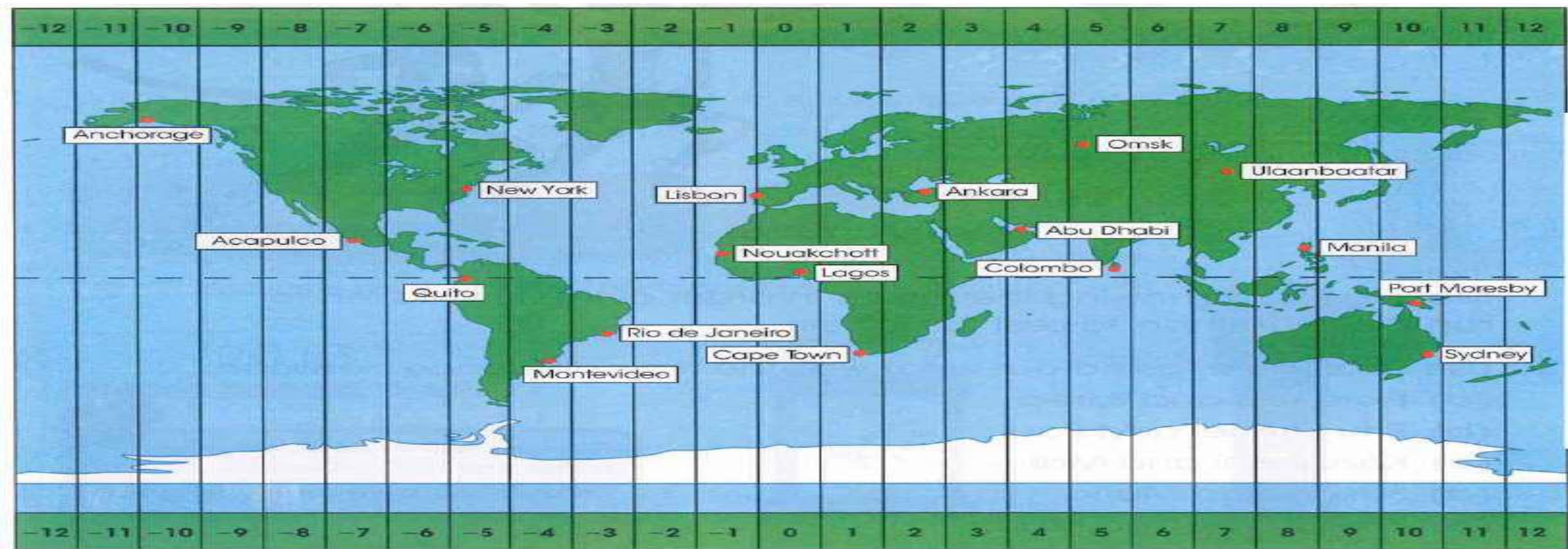


(d) If it was 20:18 in Manila, what would be the time in Colombo?

$$20:18 - 3 = 17:18$$



Find two cities with (4 h) time difference.  
Find two cities with (1 h ) time difference.  
Find two cities with (NO) time difference.





	Departure city	Destination city	Departure time at departure city	Arrival time at destination city	First work out what the time is in the arrival city at the time when the plane leaves
(a)	Lima	Sao Paulo	13:45 (Mon)	20:35 (Mon)	

The time in Sao Paulo is 2 hours **ahead** of Lima.  
 Look at the time table above. How long was the journey?

1. Find : It was (13:45 + 2 = 15:45) in Sao Paulo.

When it was 13:45, what time was it in Sao Paulo?

2. Find :  $20:35 - 15:45 = 4 \text{ hours } 50 \text{ minutes}$

How long was the journey?  
 (the arrival time - the departure time = ?)



(d)	Cape Town	Adelaide	18:05 (Fri)	22:25 (Sat)	interval between this time and the
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The time in Cape Town is 8 hours **behind** Adelaide.  
How long was the journey?



1. Find :

When it was 18:05, what time was it in Adelaide?

$$18:05 - 8 = 10$$

2. Find :

How long was the journey?  
(the arrival time - the departure time = ?)

$$22:25 - 10 = 10 \text{ h } 25 \text{ min}$$

(e)	Adelaide	Lima	09:30 (Sat)	00:20 (Sun)	arrival time.
-----	----------	------	-------------	-------------	---------------

The time in Adelaide is 4 hours **ahead** of Lima.  
How long was the journey?