

Time Calculations!



By Mark Gillan



“the past is happening, the present has gone, the future is never present –
Time does not stop for anyone.”

— Mark Gillan, Lecturer and Philosopher

FACT

60 seconds in a minute

60 minutes in an hour

24 hours in a day

7 days in a week

52 weeks in a year

| TIME.

Time is the same for us all ... and yet, different.

Time differences

Night and Day

Time zones around the world



Time Zones

Stretching out from Greenwich Mean Time (GMT) in London to the Western direction are GMT minus time zones (GMT-) and to the Easterly direction are GMT plus time zones (GMT+)

< Moving in a Westerly direction from London

Time zones to places in a Westerly direction from London have time zones that are behind GMT. For example, Brasilia, Brazil is GMT-3 hours. Other examples, Toronto, Canada is GMT-5 and San Francisco USA is GMT-8 (noting United States of America has different time zones across the country).

Greenwich Mean Time (GMT) Universal

Although the UK and some other countries utilise 'daylight saving' adjustments, such as Daylight Saving Time (DST) which is GMT+1 hour, the use of GMT is universally recognised as the starting point for Time Zones. It is the central point for standard time of GMT / UTC (Co-ordinated Universal Time).

> Moving in an Easterly direction from London

Time zones to places in an Easterly direction from London have time zones that are ahead of GMT. For example, Moscow, Russia is GMT+3 hours. Other examples, Beijing, China is GMT+8 and Sydney, Australia is GMT+10 (noting Australia itself has different time zones across the country).

Point to consider

Time for thought



Time difference across Time zones

Riyadh in Saudi Arabia is GMT+3

New York in USA is GMT-5

If the time is 16:27 in Riyadh, what is the local time in New York?

So, the 16:27 + 3 hours gives us 13:27 GMT, and 13:27 less 5 hours is 08:27
Therefore, the time in New York would be 08:27 using the UTC/GMT clock

Time Zone Tips

When calculating travel time across different time zones, convert all times to the one time zone, for example, GMT and calculate the amount of time taken.

14:28 = 12:28
Lusaka, Zambia London

Try this one ...

If Thokozani leaves Lusaka in Zambia at 14:28 local time and arrives in London at 23:43 local time. The time in London is 2 hours behind the time in Zambia. How long did the flight take?

Putting the local time in Lusaka (the 14:28) into London time, the London time of 12:28 and take that away from the journey finish time of 23:43 we would have a journey time ... 11 hours 15 minutes.

23:43 London - 12:28 London = 11 Hours 15 Minutes

Time Calculation

Most common use of time:
Taking time to do a job and
getting paid.

Overtime

If Johanna starts work at 08:30 and finishes at 17:40 getting paid overtime for any full hours over an 8-hour shift, how much overtime is Johanna due?

It is easier working with the 24-hour clock when calculating time worked within a day. So, 17 minus 8 would be 9 hours worked plus 10 minutes that is not counted for overtime due to full hours being required. Therefore, 9 hours minus 8 hours for the standard shift, leaves us ...
1 hour overtime





Another tip

Times with hours and minutes can be converted into minutes when it is more difficult taking one time away from another. Multiply the hours by 60, then add the number of minutes onto that number. Changing all times into minutes. The end product of minutes can be divided by 60 to have answer declaration in hours and minutes.

Example:

Amount of time between 11:44 and 19:03 would be the following:

19:03 in minutes as (1,140 plus the 3 mins) is 1,143

11:44 in minutes as (660 plus the 44 mins) is 704

Then, 1,143 minus 704 = 439 minutes

We can divide the 439 minutes by 60 for hours: 7.3166666

This would be 7 hours and 0.32 of an hour, $0.32 \times 60 = 19$ mins

Work it back the way to test the answer:

if we add 7 hours 19 mins onto 11:44

Summary

Time Zones

GMT/UTC

Easterly direction GMT+

Westerly direction GMT-

Time Calculation

Best to use 24-hour clock

Deduct later time from earlier

Difficult deduction of time

Convert into minutes from hours and minutes, deduct one from the other.

Convert back to hours and minutes for the difference between the times.





No-one goes before their time -
Unless the boss leaves early!

—Mark Gillan, based upon Groucho Marx

Mark Gillan

THANK YOU