

Worksheet

Time Calculations

1. Tan Wenqian leaves her hotel in Beijing at 11.50 am local time and arrives in Glasgow at 3.15 pm local time, straight onto a train down to Greenock arriving at Greenock West station at 16:22 hrs and getting home at 16:28 hrs.

Glasgow is 8 hours behind Beijing time.

How long did it take Tan to get home from Beijing in hours and minutes?

ANSWER: 12 hours and 38 minutes.

11:50 (Beijing time) leaves, which is 11:50 - 8 hours being 03:50 in minutes is:
 $3 \times 60 \text{ plus } 50 = 230 \text{ minutes.}$

16:28 arrives home. This in minutes is: $16 \times 60 = 960 \text{ plus } 28 = 988$

$988 \text{ mins less } 230 \text{ mins} = 758 \text{ minutes.}$

$758 / 60 = 12 \text{ hours and } 0.63 \text{ of an hour, so } 0.63 \times 60 = 37.8 \text{ mins.}$

Therefore, 12 hours and 38 minutes.

2. Manju Sathe works from 08:12 until 10.03 pm with a 23 minute unpaid break.

The standard contracted day for Manju is 8 hours at Euros 42 per hour and anything above this length of time will be paid as overtime at double time for full hours overtime. Any remaining minutes overtime is paid at a flat rate of Euros 1.25 per minute with parts of minutes rounded off.

How much pay including overtime is Manju to collect for the day?

ANSWER: Euros 791 (calculations on next page)

Worksheet

Finish time of 22:03 (10.03 pm in 24 hour clock) in minutes is:

$22 \text{ hours} \times 60 = 1,320 \text{ minutes}$

plus the 3 minutes brings this to 1,323 minutes.

Start time of 08:12 in minutes is:

$8 \text{ hours} \times 60 = 480 \text{ minutes}$

plus the 12 mins brings this to 492 minutes

$1,323 \text{ minus } 492 = 831 \text{ minutes difference between start and finish time,}$
less 23 mins unpaid bring the amount worked payable in minutes to 808

808 minutes into hours and minutes ...

$808 / 60 \text{ mins} = 13.466666 \text{ hours rounded off to } 13.47 \text{ hours.}$

13 hours plus 0.47 of an hour.

The $0.47 \times 60 = 28.2$ rounded off to 28 minutes.

So, the total worked is 13 hours and 28 minutes.

Pay calculations:

$8 \text{ hours} \times \text{Euros } 42 \text{ per hour} = \text{Euros } 336 \text{ for standard shift.}$

5 full hour overtime at double time ($42 \times 2 = 84$) would be $5 \times 84 = 420 \text{ Euros.}$

28 minutes at the flat rate overtime of Euros 1.25 per minute is $28 \times 1.25 = 35$

Total overtime is $420 + 35 = 455 \text{ Euros, plus the standard } 8 \text{ hour shift Euros } 336$

Therefore, total pay for the day will be $455 + 336 = 791 \text{ Euros TOTAL.}$