# Unit 8 · Time

STUDY NOTES

## Key terms

**AM**: *ante meridiem*, "before midday": 12 midnight to 12 noon.

**PM**: *post meridiem*, "after midday": 12 noon to 12 midnight.

**24-hour system**: hours 0 to 24 right through the day; no AM or PM; used in timetables.

## Units of time

| | | | |
|---|---|---|---|
| 1 min | = 60 s | 1 week | = 7 days |
| 1 hour | = 60 min | 1 year | = 12 months |
| 1 day | = 24 hours | 1 year | = 365 days |

- big unit → small unit: **multiply**; small → big: **divide**
- 1 day = **1,440 min**; 1 hour = **3,600 s**
- a year is **52 weeks and 1 day** (52 × 7 = 364), not just 52 weeks
- Nepali (BS) month: **29 to 32 days**, changes each year; AD month: 28 to 31

## Hours and minutes

- 3 h 25 min = 3 × 60 + 25 = **205 min**
- 260 min ÷ 60 = 4, remainder 20 → **4 h 20 min**
- hours only
  - 30 min = ½ h
  - 15 min = ¼ h
  - 40 min = ⅔ h
  - 2 h 30 min = 2½ h, **never 2.30 h**

## 12-hour ⇄ 24-hour

| 12-hour | 24-hour | Rule |
|---|---|---|
| 8:50 AM | 08:50 | AM: same numbers |
| 3:30 PM | 15:30 | PM: add 12 |
| 12:40 PM | 12:40 | 12:xx PM stays |
| 12:15 AM | 00:15 | 12:xx AM → 00:xx |
| 12 midnight | 00:00 or 24:00 | start / end of a day |

- 24-hour → 12-hour: 13:00 and after, take away 12 and add PM: 17:45 → **5:45 PM**
- 12 PM = **noon**, 12 AM = **midnight**; safest: "12 noon", "12 midnight"

## Drawing the hands

- **minute hand** (long): on the minutes; 50 min → on the 10
- **hour hand** (short): moves on between the hours; at 2:50 almost at 3
- write AM or PM beside it: 14:50 → 14 − 12 = 2 → **2:50 PM**

## How long?

- same day: end − start in 24-hour time; break 1 h into 60 min if needed
- 08:50 to 15:30: 14 h 90 min − 8 h 50 min = **6 h 40 min**
- **past midnight**: (start to 24:00) + (00:00 to end)
- 21:30 to 05:15: 2 h 30 min + 5 h 15 min = **7 h 45 min**

## Multiplying time

- multiply each unit **on its own**, then carry at
  - **60** (s, min)
  - **7** (days)
  - **24** (hours)
  - **12** (months)
- 2 h 15 min × 5 = 10 h 75 min = **11 h 15 min**
- 5 years 9 months × 6 = 30 y 54 m = **34 years 6 months**
- 1 h 40 min × 3 = 3 h 120 min = **5 h**: move whole hours over
- months and days: take **1 month = 30 days**: 4 months 12 days × 5 = 20 months 60 days = **22 months**

## Dividing time

1. divide the **big unit first**
2. change what is left into the small unit; add
3. divide that

- 8 h 17 min ÷ 7: 1 h, 1 h left = 60 min; 77 min ÷ 7 = 11 → **1 h 11 min**
- 21 years 4 months ÷ 8: 2 years, 5 left = 60 months; 64 ÷ 8 → **2 years 8 months**
- three units, the same way: 15 h 30 min 48 s ÷ 4 = **3 h 52 min 42 s**
- check by multiplying back: 1 h 11 min × 7 = 7 h 77 min = 8 h 17 min ✓

## Clocks in other countries

- Japan's clocks are **3 h 15 min ahead** of Nepal's
- RA-433: 22:30 Kathmandu → 08:30 Japan's time = 05:15 Nepal's: **6 h 45 min**, not 10 h

### COMMON MISTAKES

✗ 20:15 = 2:15 PM
✓ 20 − 12 = 8: 8:15 PM.

✗ 2 h 15 min = 2.15 h
✓ 2¼ h; time doesn't carry at 10.

✗ 3 h 120 min left as it is
✓ move whole hours: 5 h.

✗ a trip past midnight: end − start
✓ time to midnight + time after it.