

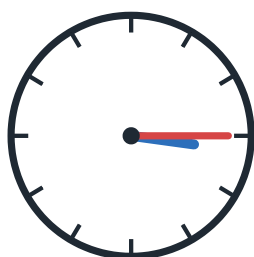
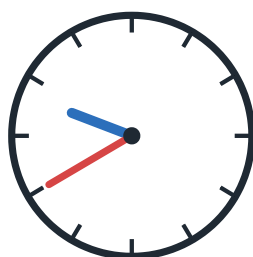
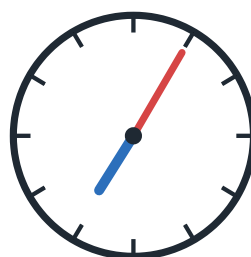
Extension & Challenge — Measurement & Time

Part A — Reading Clocks & 24-Hour Time

The same moment can be written two ways. 12-hour time uses am and pm; 24-hour time counts straight through to 23:59. After midday, add 12 to the hour: 1 pm becomes 13:00.

Worked example. A clock shows 4:20 in the afternoon. In 24-hour time that is 16:20 (because $4 + 12 = 16$).

Read each clock (write 12- and 24-hour)

**A****B****C**

Clocks A, B and C. Read the hour and minute hands carefully.

1 Write the time shown on each clock, then write it in 24-hour time as if it were in the **afternoon/evening**.

A: _____ → _____

B: _____ → _____

C: _____ → _____

2 How much time passes from the time on clock A to the time on clock C (same afternoon)?

3 A film starts at the time on clock B and lasts 1 hour 45 minutes. What time does it finish?

Answer: _____

4 Complete these conversions.

(a) 90 minutes = _____ hours _____ minutes

(b) $2\frac{1}{2}$ hours = _____ minutes

5 Rewrite each 24-hour time as a 12-hour time with am or pm: 14:30, 06:05, 23:15.

6 **Reasoning.** Give one real situation where 24-hour time avoids confusion that 12-hour time could cause.

Part B — Elapsed Time & Timetables

Elapsed time is how long passes between a start and an end. A good trick is to count up to the next whole hour first, then add the remaining hours and minutes.

Worked example. From 10:40 to 13:15: count 20 min to 11:00, then 2 hours to 13:00, then 15 min more. Total: 2 h 35 min.

1 A bus leaves at 8:50 *am* and arrives at 9:35 *am*. How long is the journey?

Answer: _____

2 Use the timetable to answer the questions.

Stop	Departs
Central	09:15
Riverside	09:48
Hilltop	10:25

(a) How long from Central to Riverside? _____

(b) How long for the whole trip, Central to Hilltop? _____

3 A train leaves at *13:20* and the trip takes *2 hours 40 minutes*. What time does it arrive (24-hour time)?

Answer: _____

4 Add these two durations: *1 h 50 min + 2 h 25 min*.

Answer: _____

5 **Work backwards.** You must arrive by *5:00 pm*. The journey takes *1 hour 35 minutes*. What is the latest time you can leave?

6 **Plan it.** You wake at *7:00 am*. Breakfast takes *20 min*, getting ready *25 min*, and the walk to school *15 min*. What time do you arrive? How much spare time before the *8:30 am* bell?