Notes & Steps

Key idea

Time conversions use fixed facts: 1 h $=$ 60 min, 1 min $=$ 60 s, 1 day $=$ 24 h. Elapsed time is the difference between a start and finish time.

Steps

1. Convert to the same unit if needed.
2. Use 24-hour time if it helps avoid mistakes.
3. For elapsed time, count up from the start to the end.
4. For finish time, add the duration to the start time.

Key facts

- 2 h $=$ 120 min
- 3 min $=$ 180 s
- $15{:}30$ is 3:30 pm
- 90 min $=$ 1 h 30 min

Common mistake

Treating 2.5 hours as 2 hours 50 minutes. Since 0.5 of an hour is half of 60 minutes, 2.5 hours is 2 hours 30 minutes.

Try these

1. Convert 150 min to hours and minutes.
2. Convert 7:15 pm to 24-hour time.
3. Find the time 45 minutes after 2:30 pm.

Notes & Steps

Example 1: elapsed time

A train leaves at 8:45 am and arrives at 11:20 am.

$$8{:}45 \to 9{:}00 = 15 \text{ min}$$

$$9{:}00 \to 11{:}00 = 2 \text{ h}$$

$$11{:}00 \to 11{:}20 = 20 \text{ min}$$

Total: 2 h 35 min.

Example 2: finish time

A movie starts at 14:30 and lasts 1 h 55 min.

$$14{:}30 + 1 \text{ h} = 15{:}30$$

$$15{:}30 + 55 \text{ min} = 16{:}25$$

Finish time: 16:25.

Example 3: speed

A car travels 240 km in 3 h.

$$\text{speed} = \frac{240}{3} = 80 \text{ km/h}$$

Example 4: decimal hours

Convert 1.6 h to minutes.

$$1.6 \times 60 = 96 \text{ min}$$