

Time and Elapsed Time

Elapsed time is just how long something took. You can count up on a clock (or number line), or just subtract. Either method works — pick the one that feels easier for a given problem.

| Conversion | Why |
|-----------------------|---------------|
| 1 hour = 60 minutes | by definition |
| 1 minute = 60 seconds | by definition |

Key Concepts

- Elapsed time** is the time from a start to an end.
- Counting up** on a clock or number line is the easiest way for many problems. Start at the earlier time and count forward in chunks (often 5, 10, or 15 minutes at a time).
- Subtracting** works too, especially when the times are on the same hour: $3:40 - 3:15 = 25$ minutes.
- Conversion: 60 minutes in an hour, 60 seconds in a minute. Multiply or divide by 60 as needed.

Worked Examples

① What is the elapsed time from 8:15 a.m. to 9:00 a.m.?

 Count up from 8:15: add 15 minutes to reach 8:30, then 30 more to reach 9:00. Total: $15 + 30 = 45$ minutes.

 **Answer:** 45 minutes

② A movie starts at 3:10 p.m. and lasts 1 hour 25 minutes. When does it end?

 Add the hour first: $3:10 \rightarrow 4:10$. Then add 25 minutes: $4:10 \rightarrow 4:35$. The movie ends at 4:35 p.m.

 **Answer:** 4:35 p.m.

③ How many minutes are in 2 hours?

 Each hour has 60 minutes. So $2 \text{ hours} = 2 \times 60 = 120$ minutes.

 **Answer:** 120 minutes

Practice Problems

Find elapsed time, end time, or convert.

- From 10:00 to 10:45 = ? min _____
- From 1:20 to 2:00 = ? min _____
- Start 4:15, add 30 min = ? _____
- Start 7:50, add 25 min = ? _____
- 3 hr = ? min _____
- 120 min = ? hr _____
- From 9:10 to 11:10 = ? hr _____
- Start 6:30, add 1 hr 15 min = ? _____
- End 5:00, elapsed 45 min, start = ? _____
- From 8:25 to 9:10 = ? min _____

11. Start 11:40, add 50 min = ? _____

12. 90 min = ? hr ? min _____

Study Tips

-  Draw a number line of time. Mark the start and end, then jump forward in friendly chunks (10, 15, 30, 60 minutes).
-  When you cross an hour, break the time into two parts: minutes to the next hour, then full hours, then leftover minutes.
-  To convert minutes to hours and minutes, divide by 60: $90 \div 60 = 1$ with remainder 30, so 90 min = 1 hr 30 min.

 Word Problems

1. Recess starts at 11:45 a.m. and lasts 20 minutes. What time does it end?

Answer: _____

2. Ben left home at 8:10 a.m. and arrived at school at 8:35 a.m. How long was his walk?

Answer: _____

Answer Key — with Friendly Explanations**Practice Problems**

1. Same hour, $45 - 0 = 45$ minutes.

 **Answer:** 45 min

2. Count from 1:20 to 1:60 (which is 2:00): 40 minutes.

 **Answer:** 40 min

3. $4:15 + 30 = 4:45$.

 **Answer:** 4:45

4. $7:50 + 10 = 8:00$, then $+15 = 8:15$.

 **Answer:** 8:15

5. $3 \times 60 = 180$ min.

 **Answer:** 180 min

6. $120 \div 60 = 2$ hours.

 **Answer:** 2 hr

7. Same minute, $11:10 - 9:10 = 2$ hours.

 **Answer:** 2 hr

8. $6:30 + 1 \text{ hr} = 7:30$, $+15 = 7:45$.

 **Answer:** 7:45

9. $5:00 - 45 \text{ min}$: go back 45 min from 5:00 to 4:15.

 **Answer:** 4:15

10. $8:25 \rightarrow 9:00$ is 35 min, then $+10 = 45$ min total.

 **Answer:** 45 min

11. $11:40 + 20 = 12:00$, then $+30 = 12:30$.

 **Answer:** 12:30

12. $90 \div 60 = 1 \text{ rem } 30$.

 **Answer:** 1 hr 30 min

Word Problems

1. $11:45 + 15 = 12:00$; $+5 = 12:05$.

 **Answer:** 12:05 p.m.

2. Same hour, $35 - 10 = 25$ min.

 **Answer:** 25 minutes

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