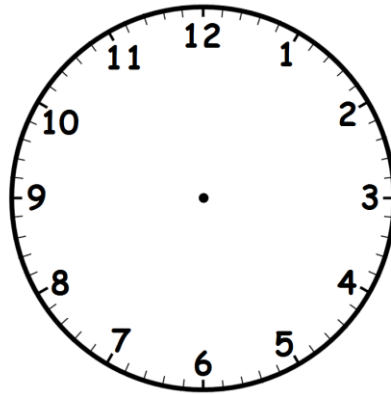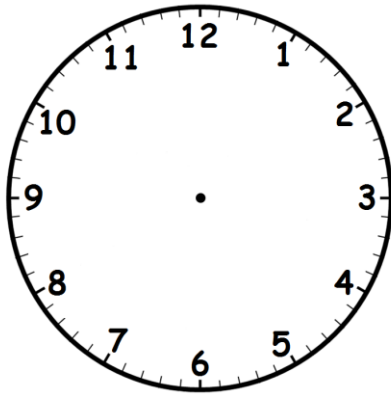# Elapsed Time

## Find elapsed time using an analog clock

Step 1: Show the start time on the first clock.
Step 2: Show the end time on the second clock.
Step 3: Count the hours and minutes passed from the start time to the end time.



| Start Time | End Time | Elapsed Time |
|---|---|---|
| 3:45 p.m. | 4:18 p.m. | 33 minutes |
| 8:32 a.m. | 9:58 a.m. | 1 hour 26 minutes |
| 9:20 p.m. | 11:45 p.m. | |
| 6:13 a.m. | 8:22 a.m. | |
| 2:04 p.m. | 3:55 p.m. | |
| | | |
| | | |
| | | |

# Elapsed Time

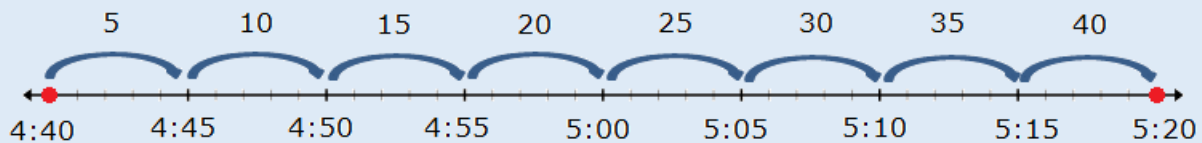## Find elapsed time using a number line

Step 1: Label a blank number line in appropriate increments of time.
Step 2: Identify the given time or times on the number line.
Step 3: Count on or count back to find the elapsed or unknown time.
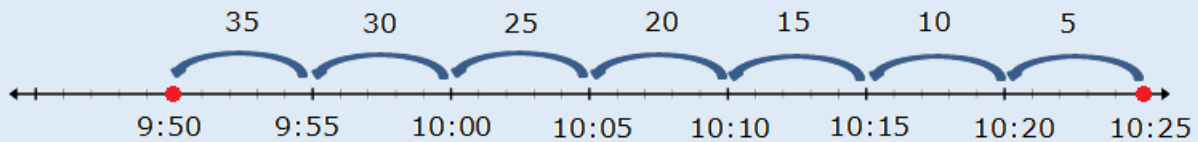
**Example 1:**

Mark studied for a test from 4:40 p.m. to 5:20 p.m. How many minutes did Mark study?



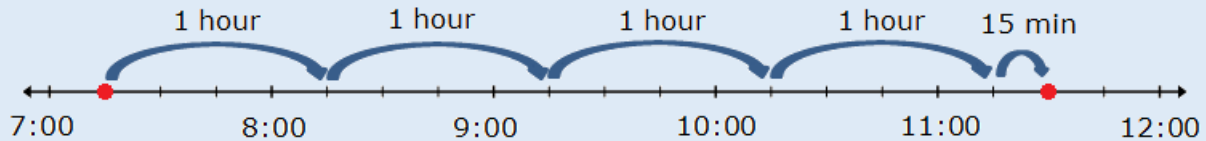The number line shows that Mark studied for 40 minutes.

**Example 2:**

Julie talked to Betsy on the phone for 35 minutes and finished her call at 10:25 a.m. What time did Julie start her call?



The number line shows that Julie started the phone call at 9:50 a.m.

**Example 3:**

Mr. Gray left on a trip at 7:15 a.m. He arrived at his destination at 11:30 a.m. How long did Mr. Gray drive?



The number line shows that Mr. Gray drove for 4 hours and 15 minutes.
1 hour + 1 hour + 1 hour + 1 hour + 15 min = 4 hours 15 min

James worked on a puzzle from 11:15 a.m. to 12:50 p.m. Use the number line to find how long James worked on the puzzle.

Martha spent 50 minutes baking a cake. She finished the cake at 2:30 p.m. Use the number line to find what time Martha started the cake.

# Elapsed Time

## Find elapsed time using a T-chart
Find the amount of time passed

Step 1: Write the given start and end times in a T-chart.
Step 2: Add a convenient number of hours or minutes to the start time to reach the end time.
Step 3: Add the hours and minutes to find the elapsed time.

**Example 1:**

Sam started his art project at 1:37 p.m. He finished the project at 3:48 p.m. How long did Sam work on his art project?

| Start Time: 1:37 p.m. | End Time: 3:48 p.m. |
|---|---|
| Add 1 hour | 2:37 |
| Add 1 hour | 3:37 |
| Add 10 minutes | 3:47 |
| Add 1 minute | 3:48 |
| Total: 2 hours 11 minutes | |

Sam worked on his art project for 2 hours and 11 minutes.

**Example 2:**

Mr. Frank worked in his vegetable garden from 10:14 a.m. to 1:23 p.m. How long did Mr. Frank work in his vegetable garden?

| Start Time: 10:14 a.m. | End Time: 1:23 p.m. |
|---|---|
| Add 1 hour | 11:14 a.m. |
| Add 1 hour | 12:14 p.m. |
| Add 1 hour | 1:14 p.m. |
| Add 6 minutes | 1:20 p.m. |
| Add 3 minutes | 1:23 p.m. |
| Total: 3 hours 9 minutes | |

Mr. Frank worked in his vegetable garden for 3 hours and 9 minutes.

Use the T-chart to find the elapsed time from 5:18 p.m. to 8:42 p.m.

| Start: | End: |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| Total: | |

# Elapsed Time

## Find elapsed time using addition or subtraction

### Addition

Step 1: Write the times to be added as a vertical addition problem.
Step 2: Add the minutes. Regroup 60 minutes as 1 hour if necessary.
Step 3: Add the hours.

**Example:**

Jonathan worked for 1 hour and 43 minutes on his homework. Then he played basketball with his friends for 2 hours and 36 minutes. How much time did Jonathan spend doing homework and playing basketball?

$$
\begin{aligned}
&\quad\text{1 h 43 min} \\
+\ &\underline{\text{2 h 36 min}} \\
&\quad\text{3 h 79 min} = 3\,\text{h} + 60\,\text{min} + 19\,\text{min} \\
&\qquad\qquad\quad\ = 3\,\text{h} + 1\,\text{h} + 19\,\text{min} \\
&\qquad\qquad\quad\ = 4\,\text{h 19 min}
\end{aligned}
$$

Jonathan spent a total of 4 hours and 19 minutes doing homework and playing basketball.

### Subtraction

Step 1: Write a vertical subtraction problem to find the difference between two given times.
Step 2: Regroup 1 hour as 60 minutes if necessary. Subtract the minutes.
Step 3: Subtract the hours.

**Example:**

A train left the station at 1:24 p.m. It arrived at its destination at 4:16 p.m. How long was the train trip?

$$
\begin{array}{lcl}
\quad\text{4 h 16 min} & & \quad\text{3 h 76 min} \\
-\ \underline{\text{1 h 24 min}} & = & -\ \underline{\text{1 h 24 min}} \\
& & \quad\text{2 h 52 min}
\end{array}
$$

The train trip was 2 hours and 52 minutes.