

Name: _____

Date: _____

CHAPTER
16

Time and Temperature

Lesson 16.1 Telling Time

Tell the time. Use *past* or *to*.

Example



52 minutes past 7



32 minutes to 12

1.



2.



3.



4.



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Tell the time in two ways.

Example



2:18

18 minutes past 2



27 minutes past 8

33 minutes to 9



10:11

49 minutes to 11



32 minutes past 5

28 minutes to 6

5.



6.



Fill in each blank with the correct time.

7. 21 minutes past 8 is _____. 8. 11 minutes to 11 is _____.

9. 7:18 is _____ minutes past _____.

10. 10:53 is _____ minutes to _____.

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Lesson 16.2 Converting Hours and Minutes

Express the time in minutes.

1. $3 \text{ h} = \underline{\hspace{2cm}} \text{ min}$

2. $1 \text{ h } 45 \text{ min} = \underline{\hspace{2cm}} \text{ min}$

3. $2 \text{ h } 29 \text{ min} = \underline{\hspace{2cm}} \text{ min}$

4. $4 \text{ h } 31 \text{ min} = \underline{\hspace{2cm}} \text{ min}$

5. $6 \text{ h } 18 \text{ min} = \underline{\hspace{2cm}} \text{ min}$

6. $3 \text{ h } 23 \text{ min} = \underline{\hspace{2cm}} \text{ min}$

7. $2 \text{ h } 58 \text{ min} = \underline{\hspace{2cm}} \text{ min}$

8. $4 \text{ h } 42 \text{ min} = \underline{\hspace{2cm}} \text{ min}$

Express the time in hours.

9. $360 \text{ min} = \underline{\hspace{2cm}} \text{ h}$

10. $240 \text{ min} = \underline{\hspace{2cm}} \text{ h}$

11. $300 \text{ min} = \underline{\hspace{2cm}} \text{ h}$

12. $420 \text{ min} = \underline{\hspace{2cm}} \text{ h}$

13. $180 \text{ min} = \underline{\hspace{2cm}} \text{ h}$

Express the time in hours and minutes.

14. $95 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

15. $105 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

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16. $160 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

17. $195 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

18. $235 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

19. $270 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

20. $305 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

21. $420 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

Solve each word problem.

Show your work.

22. Sylvia plays basketball for 110 minutes.
How many hours and minutes are there in 110 minutes?

23. Jack takes 2 hours 35 minutes to complete his science project.
How many minutes are there in 2 hours 35 minutes?

Lesson 16.3 Adding Hours and Minutes

Add.

Example

$$1 \text{ h } 25 \text{ min} + 2 \text{ h } 15 \text{ min}$$

$$\begin{array}{cc} \diagup & \diagdown \\ 1 \text{ h} & 25 \text{ min} \\ \diagdown & \diagup \\ 2 \text{ h} & 15 \text{ min} \end{array}$$

$$\text{So, } 1 \text{ h } 25 \text{ min} + 2 \text{ h } 15 \text{ min} \\ = 3 \text{ h } 40 \text{ min}$$

Step 1 $1 \text{ h} + 2 \text{ h} = 3 \text{ h}$

Step 2 $25 \text{ min} + 15 \text{ min} = 40 \text{ min}$

Step 3 $3 \text{ h} + 40 \text{ min} = 3 \text{ h } 40 \text{ min}$

1. $3 \text{ h } 40 \text{ min} + 4 \text{ h } 15 \text{ min}$

$$\begin{array}{cc} \diagup & \diagdown \\ 3 \text{ h} & 40 \text{ min} \\ \diagdown & \diagup \\ 4 \text{ h} & 15 \text{ min} \end{array}$$

$$\text{So, } 3 \text{ h } 40 \text{ min} + 4 \text{ h } 15 \text{ min} \\ = \text{ ____ h ____ min}$$

Step 1 $\text{ ____ h} + \text{ ____ h} = \text{ ____ h}$

Step 2 $\text{ ____ min} + \text{ ____ min}$

$$= \text{ ____ min}$$

Step 3 $\text{ ____ h} + \text{ ____ min}$

$$= \text{ ____ h ____ min}$$

2. $2 \text{ h } 35 \text{ min} + 6 \text{ h } 20 \text{ min}$

$$\begin{array}{cc} \diagup & \diagdown \\ 2 \text{ h} & 35 \text{ min} \\ \diagdown & \diagup \\ 6 \text{ h} & 20 \text{ min} \end{array}$$

$$\text{So, } 2 \text{ h } 35 \text{ min} + 6 \text{ h } 20 \text{ min} \\ = \text{ ____ h ____ min}$$

Step 1 $\text{ ____ h} + \text{ ____ h} = \text{ ____ h}$

Step 2 $\text{ ____ min} + \text{ ____ min}$

$$= \text{ ____ min}$$

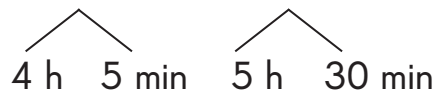
Step 3 $\text{ ____ h} + \text{ ____ min}$

$$= \text{ ____ h ____ min}$$

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3. $4 \text{ h } 5 \text{ min} + 5 \text{ h } 30 \text{ min}$



Step 1 $\underline{\quad} \text{ h} + \underline{\quad} \text{ h} = \underline{\quad} \text{ h}$

Step 2 $\underline{\quad} \text{ min} + \underline{\quad} \text{ min}$

So, $4 \text{ h } 5 \text{ min} + 5 \text{ h } 30 \text{ min}$

$= \underline{\quad} \text{ min}$

$= \underline{\quad} \text{ h } \underline{\quad} \text{ min}$

Step 3 $\underline{\quad} \text{ h} + \underline{\quad} \text{ min}$

$= \underline{\quad} \text{ h } \underline{\quad} \text{ min}$

Add.

4. a. $3 \text{ h } 18 \text{ min} + 3 \text{ h } 35 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

b. $3 \text{ h } 35 \text{ min} + 1 \text{ h } 15 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

c. $4 \text{ h } 16 \text{ min} + 2 \text{ h } 37 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

d. $5 \text{ h } 24 \text{ min} + 3 \text{ h } 39 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

$= \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

e. $3 \text{ h } 45 \text{ min} + 6 \text{ h } 30 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

$= \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

f. $7 \text{ h } 40 \text{ min} + 3 \text{ h } 25 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

$= \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

g. $3 \text{ h } 29 \text{ min} + 8 \text{ h } 48 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

$= \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

h. $9 \text{ h } 15 \text{ min} + 1 \text{ h } 50 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

$= \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

i. $4 \text{ h } 48 \text{ min} + 8 \text{ h } 42 \text{ min} = \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

$= \underline{\quad\quad\quad} \text{ h } \underline{\quad\quad\quad} \text{ min}$

Lesson 16.4 Subtracting Hours and Minutes

Subtract.

Example

$$5 \text{ h } 40 \text{ min} - 2 \text{ h } 15 \text{ min}$$

$$\begin{array}{r} \diagup \quad \diagdown \\ 5 \text{ h} \quad 40 \text{ min} \end{array} \quad \begin{array}{r} \diagup \quad \diagdown \\ 2 \text{ h} \quad 15 \text{ min} \end{array}$$

$$\text{So, } 5 \text{ h } 40 \text{ min} - 2 \text{ h } 15 \text{ min} \\ = 3 \text{ h } 25 \text{ min}$$

Step 1 $5 \text{ h} - 2 \text{ h} = 3 \text{ h}$

Step 2 $40 \text{ min} - 15 \text{ min} = 25 \text{ min}$

Step 3 $3 \text{ h} + 25 \text{ min} = 3 \text{ h } 25 \text{ min}$

1. $4 \text{ h } 25 \text{ min} - 3 \text{ h } 20 \text{ min}$

$$\begin{array}{r} \diagup \quad \diagdown \\ 4 \text{ h} \quad 25 \text{ min} \end{array} \quad \begin{array}{r} \diagup \quad \diagdown \\ 3 \text{ h} \quad 20 \text{ min} \end{array}$$

$$\text{So, } 4 \text{ h } 25 \text{ min} - 3 \text{ h } 20 \text{ min} \\ = \text{ ____ h ____ min}$$

Step 1 $\text{ ____ h} - \text{ ____ h} = \text{ ____ h}$

Step 2 $\text{ ____ min} - \text{ ____ min}$

$$= \text{ ____ min}$$

Step 3 $\text{ ____ h} + \text{ ____ min}$

$$= \text{ ____ h ____ min}$$

2. $8 \text{ h } 45 \text{ min} - 3 \text{ h } 30 \text{ min}$

$$\begin{array}{r} \diagup \quad \diagdown \\ 8 \text{ h} \quad 45 \text{ min} \end{array} \quad \begin{array}{r} \diagup \quad \diagdown \\ 3 \text{ h} \quad 30 \text{ min} \end{array}$$

$$\text{So, } 8 \text{ h } 45 \text{ min} - 3 \text{ h } 30 \text{ min} \\ = \text{ ____ h ____ min}$$

Step 1 $\text{ ____ h} - \text{ ____ h} = \text{ ____ h}$

Step 2 $\text{ ____ min} - \text{ ____ min}$

$$= \text{ ____ min}$$

Step 3 $\text{ ____ h} + \text{ ____ min}$

$$= \text{ ____ h ____ min}$$

Name: _____

Date: _____

Subtract.

3. a. $10 \text{ h } 50 \text{ min} - 3 \text{ h } 32 \text{ min} = \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

b. $15 \text{ h } 20 \text{ min} - 7 \text{ h } 36 \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min} - \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

c. $20 \text{ h } 15 \text{ min} - 6 \text{ h } 38 \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min} - \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

d. $12 \text{ h } 30 \text{ min} - 5 \text{ h } 43 \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min} - \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

e. $23 \text{ h } 20 \text{ min} - 8 \text{ h } 48 \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min} - \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

f. $10 \text{ h } 25 \text{ min} - 3 \text{ h } 55 \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min} - \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

g. $16 \text{ h } 19 \text{ min} - 2 \text{ h } 42 \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min} - \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

$= \underline{\hspace{2cm}} \text{ h } \underline{\hspace{2cm}} \text{ min}$

Name: _____

Date: _____

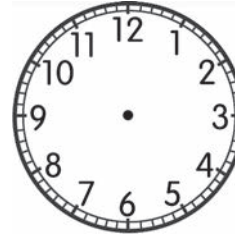
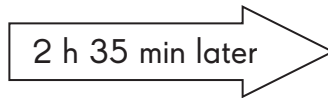
Lesson 16.5 Elapsed Time

Fill in the boxes with the correct time.
Then draw the hands on the clock.

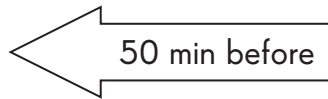
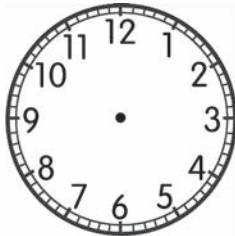
1.



7:45 P.M.



2.



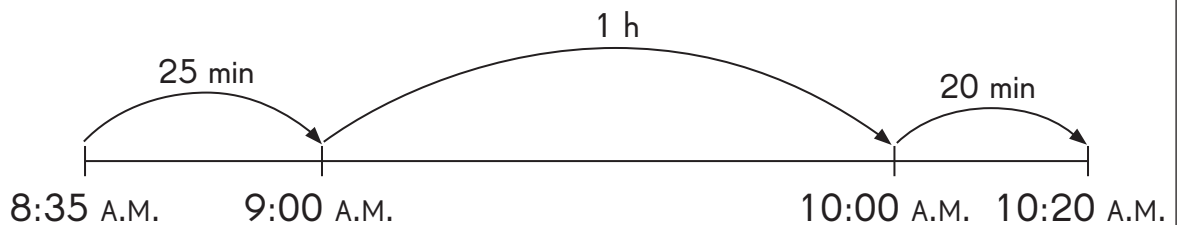
2:15 P.M.

Find the elapsed time. Draw a timeline to help you.

Example

8:35 A.M. to 10:20 A.M.

1h 45 min



$$25 \text{ min} + 1 \text{ h} + 20 \text{ min} = 1 \text{ h } 45 \text{ min}$$

Name: _____

Date: _____

3. 5:40 P.M. to 8:10 P.M. _____

4. 10:50 A.M. to 2:30 P.M. _____

Solve. Draw a timeline to help you.

5. Mason took 2 hours 35 minutes to repair the fence in his garden.
He finishes repairing it at 4:25 P.M.
When did Mason start repairing the fence?

Name: _____

Date: _____

- 6.** A supermarket opens at 7:30 A.M.
It stays open for 14 hours 30 minutes each day.
At what time does the supermarket close?

- 7.** Miss Ames' students go to the Zoo for Learning Journey
from 8:45 A.M. to 2:30 P.M.
How long is their learning journey?

Name: _____

Date: _____

8. Chantel and her family took a bus from home to the library. They left home at 9:30 A.M. and reached the library at 12 P.M. How long did the trip to the library take?

9. Tom fell asleep at 10:45 P.M. He woke up when the alarm clock went off at 6:30 A.M. How long did Tom sleep?

Name: _____

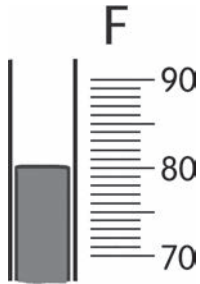
Date: _____

Lesson 16.6 Measuring Temperature

Write each temperature using °F.

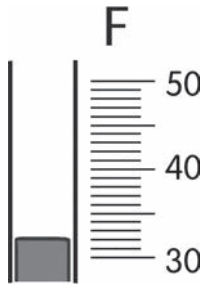
Then write *hot*, *warm*, *cool*, or *cold* to describe the temperature.

1.



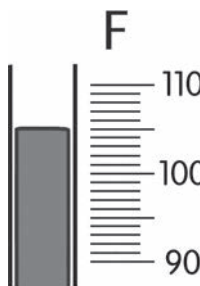
_____ °F

2.



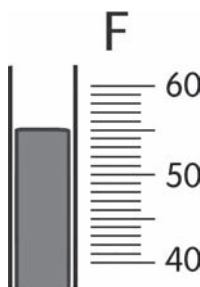
_____ °F

3.



_____ °F

4.

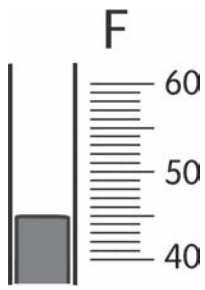


_____ °F

Name: _____

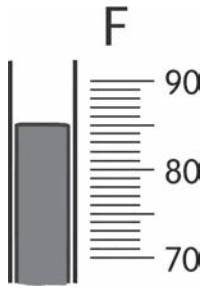
Date: _____

5.



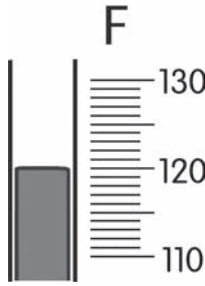
_____ °F

6.



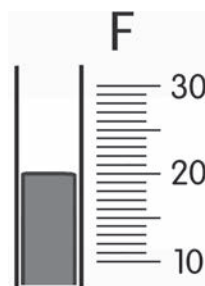
_____ °F

7.



_____ °F

8.



_____ °F

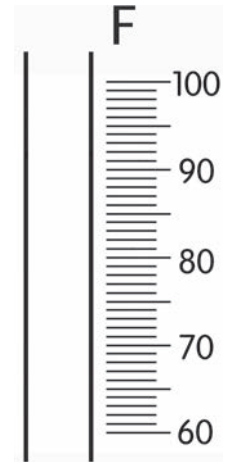
Name: _____

Date: _____

Solve.

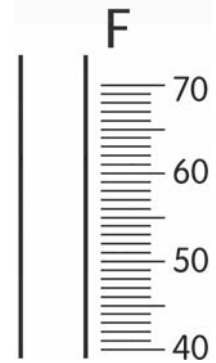
9. Write the temperatures in order, from coldest to warmest.

96°F 69°F 76°F



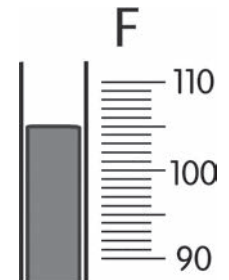
10. Write the temperatures in order, from warmest to coldest.

64°F 46°F 52°F



Decide which activity matches the temperature.

11. Are people ice skating on a pond or swimming in a pool?



Name: _____

Date: _____

Decide which temperature matches the activity.

- 12.** Jimmy and his classmates are playing soccer at a field.
Would the temperature be 68°F or 120°F ?

Complete.

- 13.** The temperature outside is 50°F .
The temperature in a classroom is 72°F .
How much warmer is the classroom?

- 14.** Water boils at _____ $^{\circ}\text{F}$.

- 15.** Water freezes at _____ $^{\circ}\text{F}$.

Name: _____

Date: _____

Lesson 16.7 Real-World Problems: Time and Temperature

Solve.

1. Linda looks after her baby sister for 3 hours 25 minutes when her mother goes shopping.
How many minutes does Linda look after her baby sister?

2. Karen started making muffins for her brother at 1:30 P.M.
She took the muffins out of the oven at 4:10 P.M.
How long did it take Karen to make the muffins?

Name: _____

Date: _____

3. Matthew leaves home at 11:40 A.M. and arrives at the school at 12:15 P.M.
How many minutes does it take for Matthew to get to school?

4. A boat ride starts at 12:45 P.M. and returns at 2:10 P.M.
How long is the boat ride?

Name: _____

Date: _____

- 5.** Marian practices ballet for 1 hour 30 minutes in the morning and 45 minutes in the afternoon.
How long does Marian practice ballet in all?
Give your answer in hours and minutes.

- 6.** Mr. Cruise travels 2 hours 40 minutes from Town P to Town Q.
He travels 1 hour 55 minutes from Town Q to Town R.
How long does he travel altogether?

Name: _____

Date: _____

- 7.** Richard took 2 hours 25 minutes to cook the turkey.
Then he took 3 hours 48 minutes to to cook the beef.
How much time did Richard spend cooking the turkey and roast beef?

- 8.** Peggy takes 1 hour 25 minutes to prepare her family dinner.
Gary takes 2 hours 40 minutes to prepare his family dinner.
How much longer does it take Gary to prepare dinner than Peggy?

Name: _____

Date: _____

- 9.** A school choir practices for 1 hour 45 minutes on Friday and 3 hours on Saturday.
How much shorter than the Friday practice is the Saturday practice?

- 10.** Madeline is away from home for 3 hours 10 minutes to watch a show. Her sister, Rosie, is away from home for 1 hour 55 minutes to go shopping. Both of them leave home at the same time.
How much earlier does Rosie return home?

Name: _____

Date: _____

- 11.** The temperature at noon is 80°F .
Late evening, the temperature is 52°F .
What is the difference between the two temperatures during that day?

- 12.** The recipe for a pizza says to preheat the oven to 450°F before putting the pizza in the oven.
The oven temperature is now 365°F .
How much hotter should the oven get before you put in the pizza?

Name: _____

Date: _____



Put On Your Thinking Cap!

1. When Joanne wakes up, the clock shows 6:15 A.M.
It takes her 15 minutes to get dressed, 18 minutes to have breakfast
and 25 minutes to travel to school.
School starts at 7:20 A.M. Will Joanne arrive at school on time?

2. Six planes leave the airport at equal intervals.
The first plane leaves at 8:45 A.M. and the last plane leaves at 10:15 A.M.
At what time does the third plane leave?



Name: _____

Date: _____

- 3.** The doctor gives Amanda ointment for her wound.
Amanda needs to apply the ointment every 40 minutes, eight times per day.
Amanda first applies the ointment at 2:50 P.M.
At what time will she apply the ointment for the last time that day?



Name: _____

Date: _____

4. Kanye's birthday is in March.
- This year, his birthday is not on a weekend.
 - The date has two digits.
 - You say the date when you count by twos.
 - The sum of the two digits is 9.

MARCH

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

What is the date of Kanye's birthday?

Name: _____

Date: _____

5. Today is Monday, August 7.
There are 31 days in August.
Marina's birthday is on September 6.
On what day of the week is Marina's birthday?
Write the steps you followed to answer the question.

