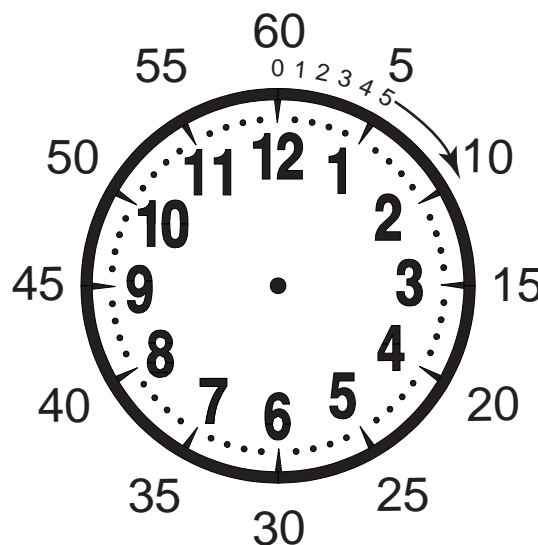


Facts to Know

Let's review some of the basics of how to tell time. The short hand on the clock indicates the hour while the long hand indicates the minutes. Not only do the numbers on the face of the clock indicate what hour it is but they also indicate the number of minutes in each hour. Starting at the 12, you have to count by 5's, going around the clock until you again reach the 12. Keep in mind that an hour is made up of four quarters. Each quarter is 15 minutes long. When the time is 15 minutes past the hour, it can be read as quarter past the hour (**Example:** 2:15 is also a quarter past 2). When the time is 15 minutes before the next hour, the time can be read as quarter 'til the hour (**Example:** 2:45 or quarter 'til 3).



To keep track of the minutes and hours during the day and night, we use several devices. A wristwatch with a second hand counts oscillations in a little wheel that rocks back and forth. A grandfather clock counts swings of the pendulum. A digital watch counts electronic oscillations in a quartz crystal. All of these are fairly accurate, but they all must be adjusted once in a while.

One of the most accurate clocks is the digital clock which plugs into a wall socket. Digital clocks count cycles of 60-cycle electrical power. You might think that the power company is not in the time business, but it is!

Elapsed Time

You can calculate how much time has passed or elapsed from the beginning of an activity to its end.

Sample

Monica and Eli went to the beach. They left their house at 9:30 A.M. If they got home at 3:00 P.M., how much time elapsed?

From 9:30 A.M. to 12:00 P.M., $2\frac{1}{2}$ hours elapsed.

From 12:00 P.M. to 3:00 P.M., 3 hours elapsed.

Add $2\frac{1}{2}$ hours to 3 hours. So $5\frac{1}{2}$ hours elapsed from the time Monica and Eli left their house to when they came back home.

Use the time conversion table below to help you work out the problems on the pages in this unit.

Time Table

60 seconds = 1 minute

60 minutes = 1 hour

24 hours = 1 day

A.M. is the time from midnight to noon.

P.M. is the time from noon to midnight.

7 days = 1 week

52 weeks = 1 year

10 years = 1 decade

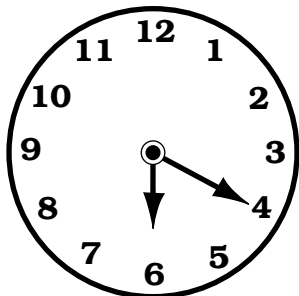
10 decades = 1 century

10 centuries = 1 millennium

••••• Working with Basic Units of Time

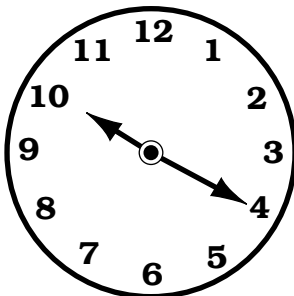
Directions: Use the table on page 5 to answer the questions. Read the time on the clock and answer the questions.

1.



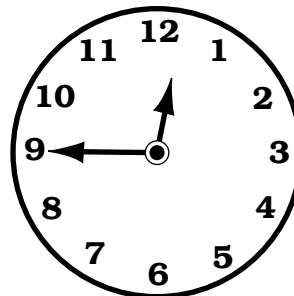
What time was it 10 minutes earlier? _____

2.



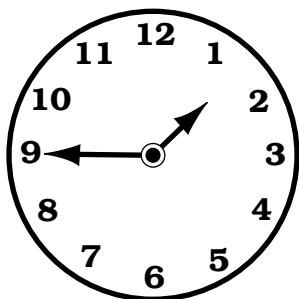
What time was it 5 minutes earlier? _____

3.



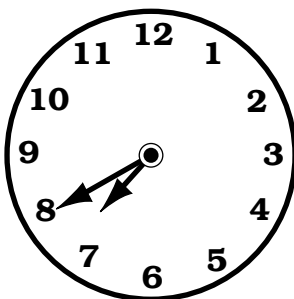
What time was it 40 minutes earlier? _____

4.



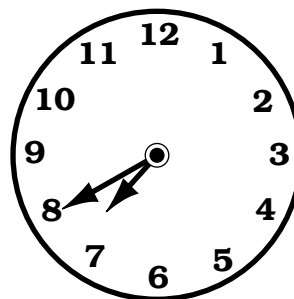
What time was it 25 minutes earlier? _____

5.



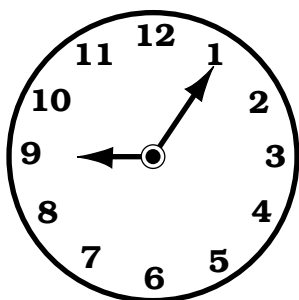
What time was it 50 minutes earlier? _____

6.



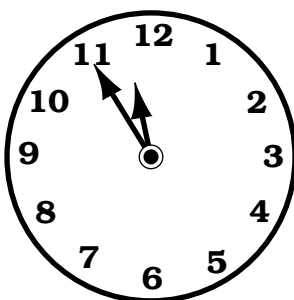
What time was it 20 minutes earlier? _____

7.



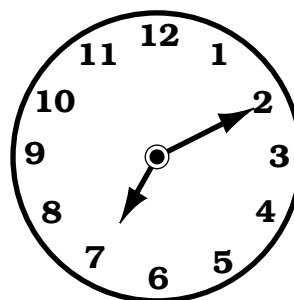
What time was it 35 minutes earlier? _____

8.



What time was it 30 minutes earlier? _____

9.



What time was it 50 minutes earlier? _____

10. 4 mins + 21 hrs + 3 hrs + 5 days + 56 mins = _____ days _____ hr(s)

11. 4 mos + 15 yrs + 10 wks + 9 wks + 2 mos + 7 wks + 1 yr = _____ yrs _____ wks

12. 90 mins + 10 hrs + 4 hrs + 2 hrs + 300 mins + 300 mins + 30 mins = _____ day _____ hrs

13. 12 hrs + 6 days + 48 hrs + 20 hrs + 12 hrs + 3 days + 4 hrs + 1 day = _____ wks

14. 25 mins + 15 secs + 4 mins + 120 secs + 300 mins + 300 secs + 20 mins + 3 mins + 45 secs = _____ hrs

Directions: Solve each problem below.

15. Lauren has an oboe lesson at 4:30. The lesson is a half-hour long. At what time does her oboe lesson end? _____
16. Joan cleans houses. She started on the upstairs of Natalie's house at 10:30. She finished cleaning 3 hours later. At what time did she finish? _____
17. Ingrid begins making donuts at the bakery at 3 A.M. She finishes at 5:30 A.M. How long did it take her to make the donuts? _____
18. George put a stalk of celery into water dyed red at 11:30. The celery began to turn red 40 minutes later. At what time did the celery begin to turn red? _____
19. Lupe gets to school at 8:15 A.M. She eats lunch four hours later. At what time does Lupe eat lunch? _____ P.M.
20. Libby goes to Gloria's house at 1:30 and stays for 50 minutes. At what time does Libby leave Gloria's house? _____
21. Olivia went to Isaac Walton Park at 2:05. She got back home at 2:55. How long was Olivia gone? _____
22. Mrs. Mikes started running around the block at 1:00. Each lap around the block takes her 3 minutes. She ran around 9 times. At what time did she finish?

Directions: Calculate how much time elapsed for each problem below.

23. 7:00 A.M.–7:00 P.M. How much time elapsed? _____
24. 6:45 A.M.–1:00 P.M. How much time elapsed? _____
25. 12:00 A.M.–5:45 A.M. How much time elapsed? _____
26. 7:30 A.M.–3:30 P.M. How much time elapsed? _____
27. 5:30 A.M.–12:45 P.M. How much time elapsed? _____
28. 11:25 A.M.–1:00 P.M. How much time elapsed? _____

Directions: Using the time table on page 5, solve the problems below.

29. Manny's baseball practice lasted 3,600 seconds on Monday. How many minutes was practice? _____
30. Gregory spends 40 minutes each day working out, Monday through Friday. How much time did Gregory spend looking out at the end of four weeks? _____
31. Mrs. Nyberg's field trip with her biology class was a 240-minute hike through the Morton Arboretum. How many hours did the hike last? _____
32. Ian takes $2\frac{1}{2}$ minutes each day to walk to the bus on the corner. How many days does he have to walk to the bus before he has totaled 60 minutes walking?

33. Your heart beats an average of 86,400 times in 24 hours. How many beats per minute is that? _____
34. Mrs. Webb walks her dogs every day down to the end of the street. It's 15 minutes up and down the street. How many hours does she spend walking her dogs in four weeks?

35. In the jump-rope-for-fitness contest, Heidi jumped double dutch for 720 seconds. How many minutes was that? _____
36. Andrew jogs for 30 minutes each morning before leaving for his job at the Coffee Nut House. How many days will he have to jog before he has totaled 24 full hours of jogging? _____
37. Lauren spent 120 hours at Blue Lakes Fine Arts Camp. How many days was that?

38. Matt takes 15 minutes to ride his bike to school. Then it takes him another 5 minutes to lock his bike, stop by his locker, and arrive in class. How many trips like this will he have to take to equal 12 hours? _____
39. Mr. Sanchez walks his two dogs for 30 minutes in the morning and 30 minutes at night. During a week how many hours does Mr. Sanchez spend walking his dogs?

40. Javier exercises at the local gym for 45 minutes every afternoon except on weekends. How many hours does Javier spend exercising during a four-week period?



Answer Key

Pages 6–8

- 6:10
- 10:15
- 12:05
- 1:20
- 6:50
- 7:20
- 8:30
- 11:25
- 6:20
- 6 days 1 hr
- 17 yrs 2 wks
- 1 day 4 hrs
- 2 wks
- 6 hrs
- 5:00
- 1:30
- 2 1/2 hrs
- 12:10
- 12:15 P.M.
- 2:20
- 50 mins
- 1:27
- 12 hrs
- 6 hrs 15 mins
- 5 hrs 45 mins
- 8 hrs
- 7 hrs 15 mins
- 1 hr 35 mins
- 60 mins
- 13 hrs 20 mins
- 4 hrs
- 24 days
- 60 beats per minute
- 7 hrs
- 12 mins
- 48 days
- 5 days
- 36 trips
- 7 hrs
- 15 hrs

Page 11

- 310 wks 1 day
- 572 wks 3 days
- 207 wks 3 days
- 259 wks 4 days
- 103 wks 4 days
- 674 wks
- 3 yrs
- 8 yrs
- 10 yrs
- 9 yrs
- 7 yrs
- 3 yrs

- 1 hr 31 mins
 - 34 mins
 - 25 mins
 - 2 hrs 30 mins
- 2 hrs
 - 30 mins
 - 2 hrs 30 mins
 - 4 hrs
- 30 mins
 - 10 mins
 - 1 hr
 - 1 hr 30 mins
- XV
- XXVII
- LVIII
- CXXI
- CCCXII
- CCXXVIII
- LXXIII
- MCMLXIII
- MCMXCIX
- MCMXL

Page 15

- 2 hrs 45 mins (Buffalo)
- 49 mins (Miami)
- 7:27 A.M.
- 6:05 and 7:42 A.M.
- 5 mins
- 1 hr 37 mins
- 25 mins
- 68 mins (1 hr 8 mins)
- 11:00 A.M.
- 6:45 P.M.
- 14 mins
- 16 mins
- 3 hrs 14 mins
- The 11 A.M. and 3:30 P.M.
- 2 mins
- 15 mins
- 1 min
- 1 min

Page 17

- 8:00 A.M.
- 1:00 P.M.
- 1:00 P.M.
- 7:30 A.M.
- 6:00 P.M.
- EST
- 4 hrs
- 6 1/2 hrs
- 12:00 P.M.
- 9:00 P.M.
- 10:00 P.M.
- 5:00 P.M.