5.10

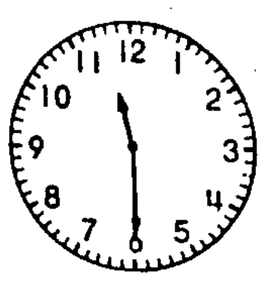
Name

Elapsed Time: Hours and Minutes *(150–151)*

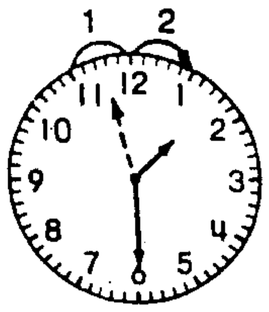
Reteaching WORKSHEET 55

Use two steps to solve problems involving hours and minutes.

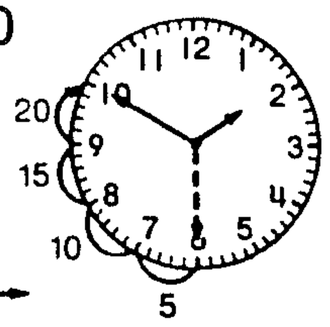
Find the time 2 hours 20 minutes *after* 11:30 A.M.



First, think 2 hours after 11:30 P.M. is 1:30 P.M.

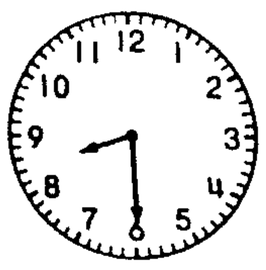


Then think 20 minutes after 1:30 P.M. is 1:50 P.M.



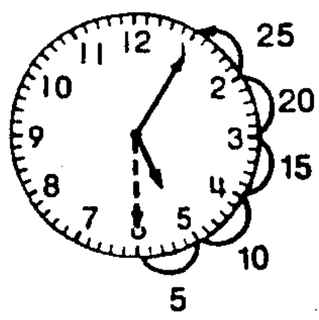
The time is 1:50 P.M.

Find the time 3 hours 25 minutes *before* 8:30 P.M.



First, think 3 hours before 8:30 P.M. is 5:30 P.M.

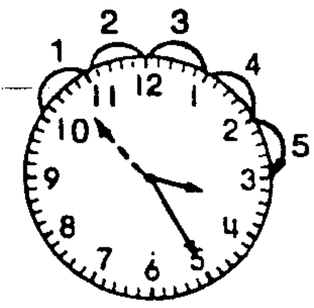
Then think 25 minutes before 5:30 P.M. is 5:05 P.M.



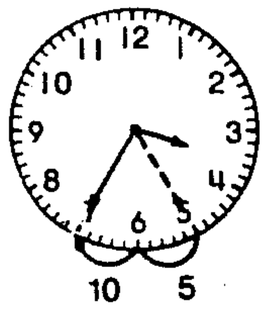
The time is 5:05 P.M.

Find the time *between* 10:25 A.M. and 3:35 P.M.

Count the number of hours between 10:25 A.M. and 3:25 P.M. There are 5 hours.



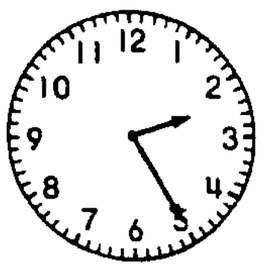
Count the number of minutes between 3:25 P.M. and 3:35 P.M. There are 10 minutes.



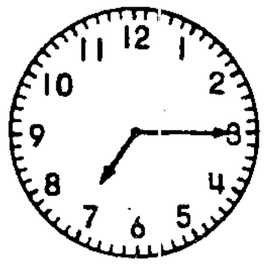
There are 5 hours 10 minutes between 10:25 A.M. and 3:35 P.M.

Find the time:

1. 4 hours 20 minutes after 2:25 P.M.

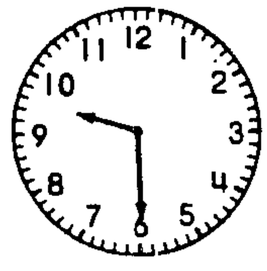


2. 6 hours 40 minutes after 7:15 A.M.



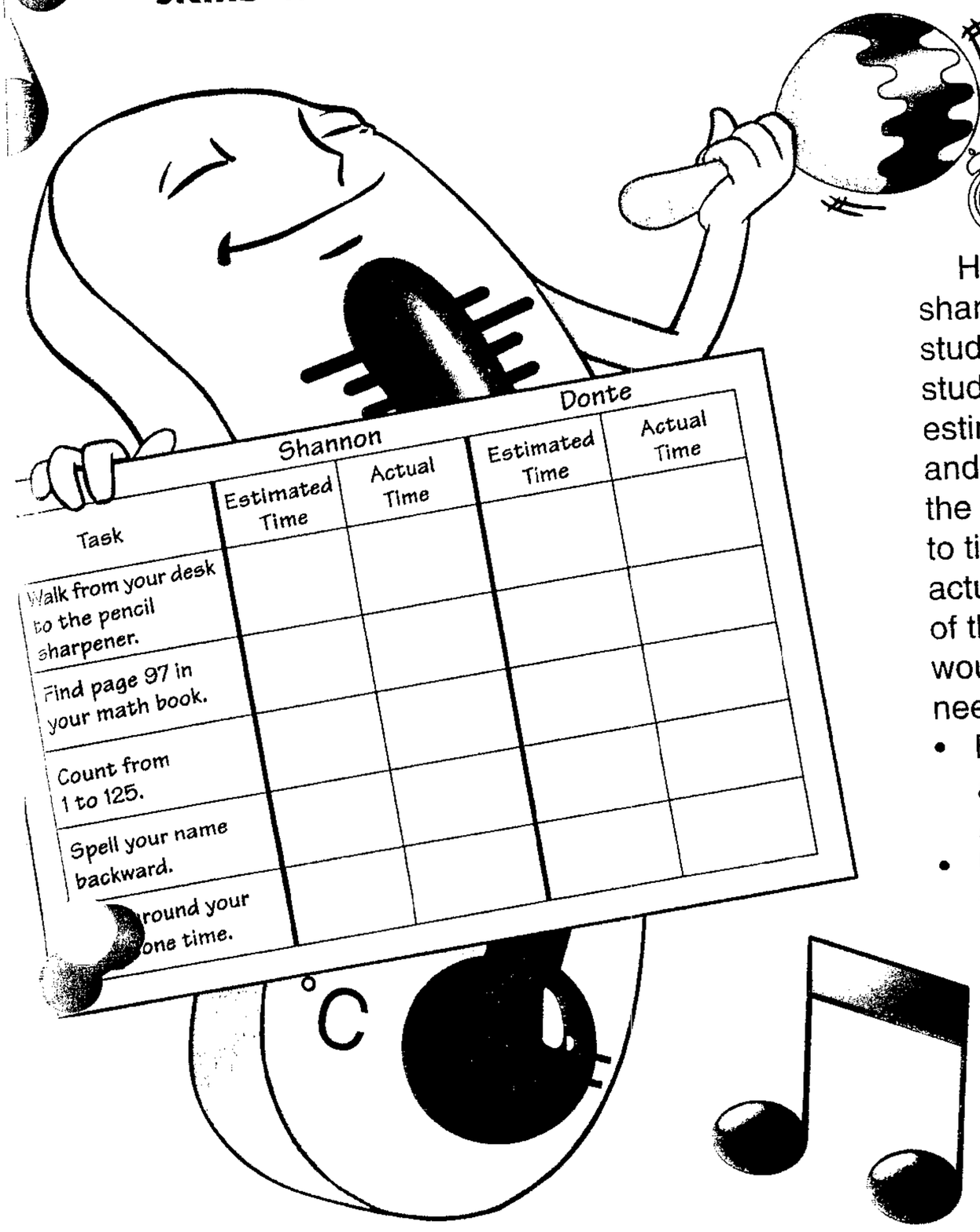
3. 2 hours 30 minutes before 4:45 P.M.

4. between 9:30 A.M. and 4:50 P.M.



Tuning Up Time and Temperature Skills

Tune up your students' time and temperature skills with the following noteworthy activities!

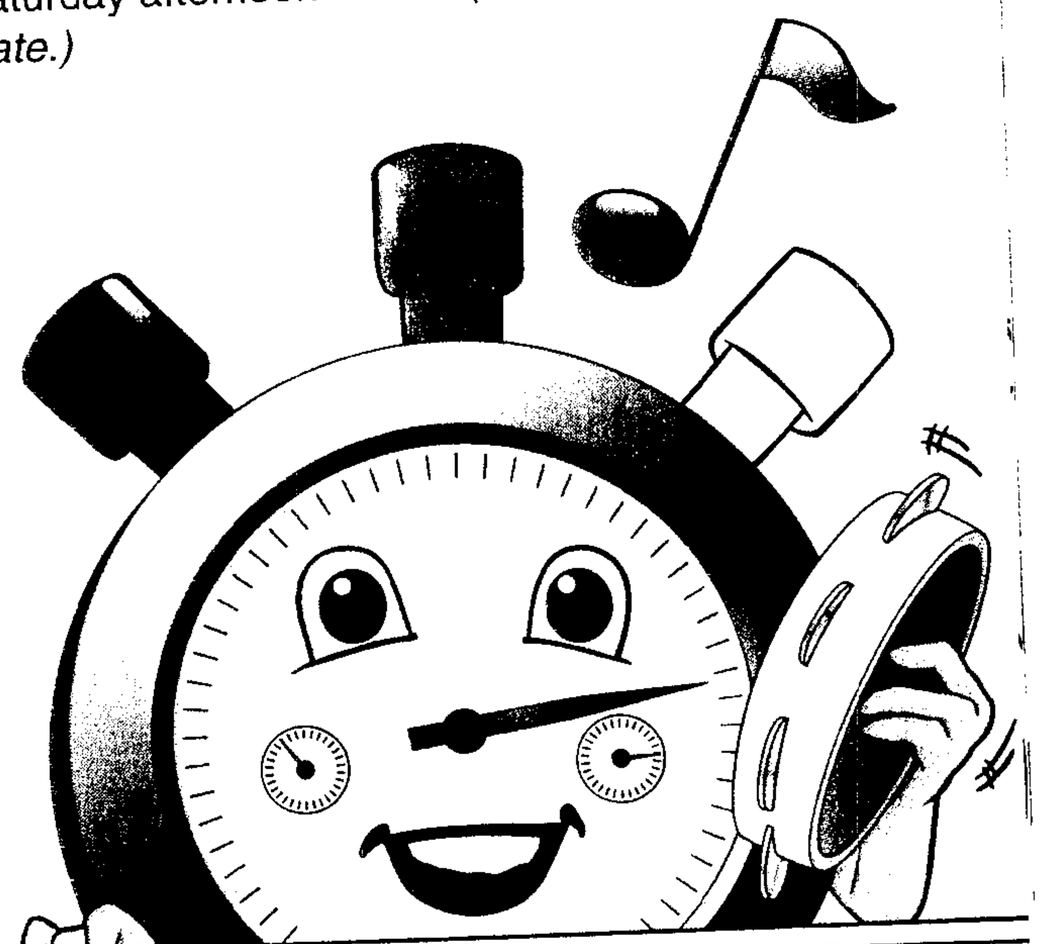


Timely Tasks

Skills: Estimating and measuring time

How long does it take to walk from a desk to the pencil sharpener or to find a particular page in a book? Have students find out with this timely activity! Direct pairs of students to copy the chart at the left. Then ask students to estimate the time they think it would take to do each task and have them record the estimates in the chart. Next, have the partners complete the tasks (using the classroom clock to time themselves to the nearest second) and record their actual times. Afterward, have students discuss the accuracy of their estimates. Conclude by asking students whether it would be better to overestimate or underestimate the time needed for the following tasks:

- Bake brownies in the oven. *(Underestimate. More time can always be added to cooking time, while overestimating might result in burned brownies!)*
- Eat lunch and clean your room before you meet a friend for a Saturday afternoon movie. *(Overestimate, to avoid being late.)*



Time Matters

Skills: Finding and comparing elapsed time

Use this simple activity to help students determine the amount of time that passes between the beginning and end of a task. Divide the class into pairs and give each pair 30 paper clips. Have each student use the classroom clock to time his partner (in minutes and seconds) as she assembles the paper clips into a chain and then takes the chain apart. Direct students to record their times. Next, combine students into groups of two pairs each. Have each group list the start and finish times of its four members on chart paper. Then instruct each student to copy his group's chart, calculate each member's elapsed time, and order the times from first to fourth (see the example). Have group members compare their finished charts and check each other's calculations.

Student	Start Time	Finish Time	Elapsed Time	Place
Tommy Tuba	10:20	10:22:48	2 min. 48 sec.	3rd
Helen Horn	10:25	10:27:10	2 min. 10 sec.	2nd
Taylor Trumpet	10:28	10:29:38	1 min. 38 sec.	1st
Tammy Trombone	10:30	10:32:50	2 min. 50 sec.	4th

5.10

Name _____ Elapsed time

Everybody Loves a Party!

Mr. Heart's students are busily preparing for their big Valentine's Day party, and everyone's pitching in! Read and solve each problem below. Write your answers on the matching hearts. Be sure to include A.M. and P.M. with each time.

1. Amy will bake cupcakes. She will begin at 3:30 P.M. and spend 15 minutes preparing the batter. If the cupcakes have to bake for 12 minutes, when will they be done?
2. Jon wants to perform a special song. He will practice 20 minutes every day beginning at 4:50 P.M. At what time will Jon finish practicing?
3. Rob will cut out paper hearts for decorations. Each one will take 4 minutes. If he begins at 11:30 A.M. and cuts out 12 hearts, when will he finish?
4. Maya and Josh will prepare fresh vegetables. They will begin at 4:10 P.M. and work for 55 minutes. When will they finish?
5. It will take Sally 13 minutes to make and then hang a streamer. She will begin at 5:15 P.M. and hang 4 streamers. When will she finish?
6. Matt offers to help Sally with 4 more streamers. (See problem 5.) Working together, the two of them can make and then hang a streamer in 8 minutes. If they begin at 7:05 P.M., when will they finish?
7. Brad will begin making valentines at 10:15 on Saturday morning. He will spend 5 minutes cutting out hearts for each card. He'll spend 6 more minutes decorating each card. If he makes 9 cards in all, when will he finish?
8. Mr. Heart left his home at 7:20 in the morning. He drove 10 minutes to a store, shopped 6 minutes for party cups, and then drove 8 minutes to school. When did he arrive at school?
9. It takes Kyle 2 minutes to blow up a heart-shaped balloon. If he starts at 11:45 A.M. and blows up 20 balloons, when will he finish?
10. Kelsie will begin decorating with balloons at 1:00 P.M. It takes her 4 minutes to hang each of 6 balloons from the ceiling. It takes her 1 minute to display each of the other 14 balloons. When will Kelsie finish?
11. A committee of students will begin welcoming guests 12 minutes before the party begins. If the party begins at 10:00 A.M., at what time should the committee be ready?
12. Cleanup after the party will take 35 minutes. If the party ends at 10:45 A.M., at what time will the cleanup be finished?

Bonus Box: Draw a clockface (without the hands) on your paper. Draw 2 straight lines across the face of the clock, dividing it into 3 sections, so that the sums of the numbers in the sections are the same.

5.10

Name _____

11.14
TAKE ANOTHER LOOK

Problem Solving
Using a Schedule

Often, you can solve problems by using a schedule. Decide what you need to find. Then read the schedule to find it.

Peter and his sister, Jessica, prepared a schedule of the events they might attend in an evening. They want to attend each event from beginning to end. If they leave home at 6 P.M., it will take them 45 min to reach any event. What is the first event they can attend?

Event	Begins	Ends
Movie	7:00 P.M.	8:45 P.M.
Play	7:30 P.M.	9:50 P.M.
School dance	6:30 P.M.	10:45 P.M.
Carnival	8:15 P.M.	12:00 A.M.
Car show	9:00 P.M.	12:30 A.M.

They can arrive no earlier than 6:45. So, the first event they can attend is the 7:00 movie.

Use the schedule to solve the following problems.

1. Which event is the longest?
School dance

2. How long is the longest event?
4 hr 15 min

3. Which event is the shortest?
Movie

4. How short is the shortest event?
1 hr 45 min

5. Suppose Peter and Jessica want to attend two events. Which two events can they choose to attend?
Movie and car show

6. What time would Peter and Jessica need to leave home to get to the school dance on time?
5:45 P.M.

7. It takes Peter and Jessica 45 min to get home after an event. In order to meet their 11:00 P.M. curfew, which events can they not attend?
School dance, carnival, and car show

8. If Peter and Jessica have their curfew extended to 12:15 A.M., which events can they not attend?
Carnival and car show

Use with text pages 378–379.

5.10

Name _____

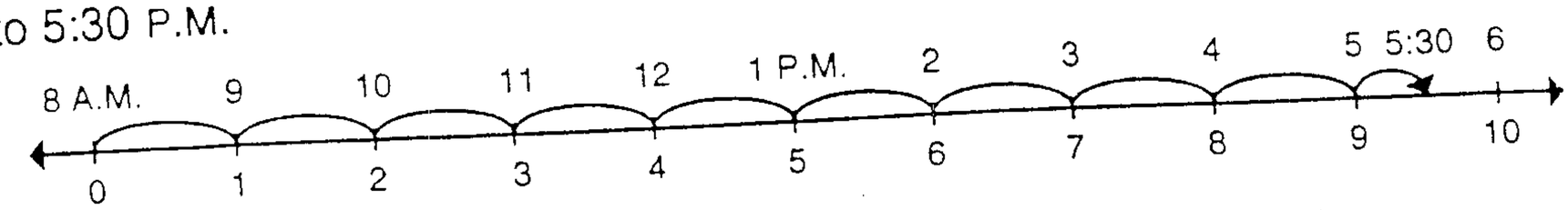
11.13 TAKE ANOTHER LOOK

Computing with Units of Time

Sometimes a number line can help you solve problems involving time.

Mr. Seda opens his store at 8:00 A.M. and closes it at 5:30 P.M. For how long is his store open?

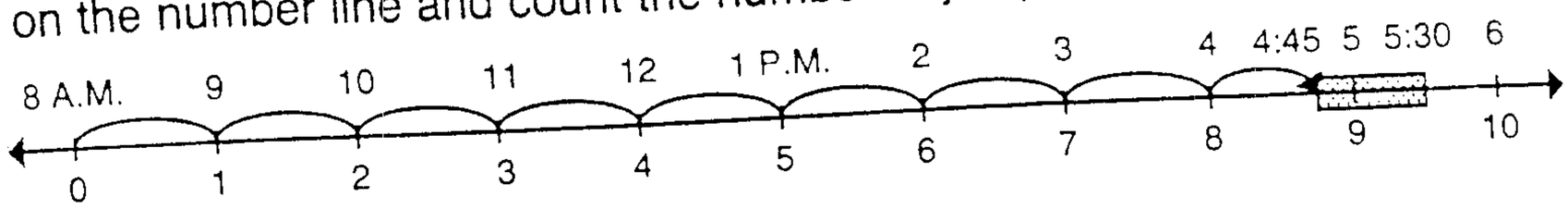
Draw a number line and count the number of jumps from 8 A.M. to 5:30 P.M.



You can count $9\frac{1}{2}$ jumps.

So, the store is open 9 hr 30 min.

Suppose Mr. Seda closed his store for 45 minutes during the day. For how long would his store be open? Block out 45 minutes on the number line and count the number of jumps.



You can count $8\frac{3}{4}$ jumps.

So, the store would be open for 8 hr 45 min.

Add or subtract. You may use a number line to help you.

1. 1 hr
   +2 hr
   3 hr

2. 1 hr 30 min
   +3 hr 30 min
   5 hr

3. 4 hr 45 min
   −2 hr 15 min
   2 hr 30 min

4. 5 hr 15 min
   −3 hr
   2 hr 15 min

Solve.

5. Lulu arrived at Lita's house at 12 noon. She left at 3:45 P.M. How long was she at Lita's house?

   3 hr 45 min

6. Joe fell asleep at 10 P.M. He woke up at 6:30 A.M. the next morning. How long was Joe asleep?

   8 hr 30 min

Name _____ 5.10

11.13

USE WHAT YOU KNOW

Computing with Units of Time

Compute the time when each event began or ended.

1. Larry arrived at school at 7:25 A.M. It takes Larry 45 min to walk to school.

_____

2. Lunch is served at 12:30 P.M. It takes 52 min to prepare lunch.

_____

3. Dinner is served at 6:00 P.M. It takes 17 min to eat dinner.

_____

4. A boat arrived on Tuesday at 6:15 A.M. The boat was on the ocean for 4 days, 2 hr, and 34 min.

_____

Add or subtract.

5. 6 hr 21 min
   − 3 hr 53 min

6. 4 min 25 sec
   + 5 min 51 sec

7. 8 min 19 sec
   − 4 min 46 sec

8. 6 hr 20 min
   + 2 hr 43 min

9. 8 min 15 sec
   − 7 min 31 sec

10. 8 hr 0 min
    − 4 hr 34 min

Mixed Applications

11. Kevin started his book report at 6:50 P.M. He took a 30-min break and finished his report at 9:15 P.M. How long did he work on his book report?

_____

12. Joanie worked for 4 hr 20 min at the grocery store. If she started at 4:15 P.M., when did she finish?

_____

EVERYDAY MATH CONNECTION

13. Sometimes airlines must delay their flights because of poor weather conditions. Your flight was delayed 2 hr 15 min because of snow. It was scheduled to leave the airport at 3:14 P.M. and arrive at the airport near your home at 5:52 P.M. Given the delay for the poor weather, what time will you arrive at your home airport?

_____