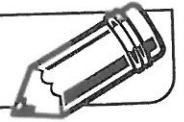
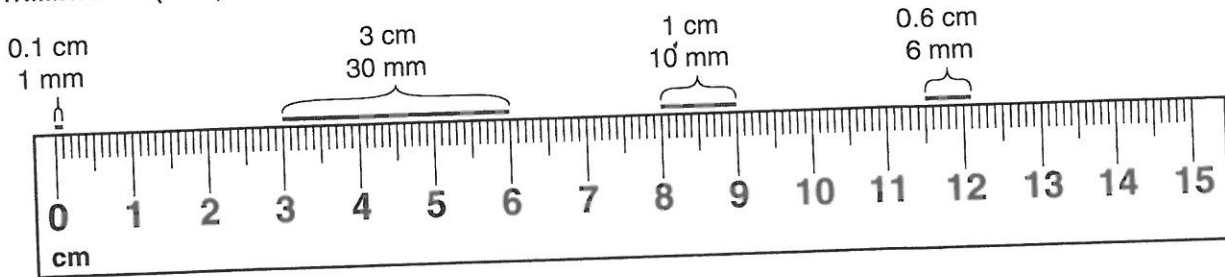


**LESSON**  
**6•2**
**Metric Measures and Conversions**


On metric rulers, centimeters (cm) are divided into 10 equal parts. Each part is called a millimeter (mm).



1. Measure each line segment to the nearest tenth of a centimeter and then to the nearest millimeter.

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

2. Draw a line segment that is 6.5 cm long. What is its length in millimeters?

\_\_\_\_\_

3. Describe a pattern you see when you measure the same line segment in centimeters and in millimeters.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. If you know that a line segment is 32 mm long, explain how to find its length in centimeters without measuring.

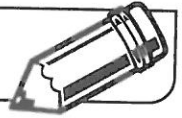
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**LESSON**  
**6•2**

## Another Look at Personal Measures



Different people have different body measures, but is there a relationship between an individual's personal measures? For example, does knowing a person's arm span help predict that person's height? In this activity, you will compare the class measurements for palm width and joint length.

1. Make a prediction: Do students with greater palm widths also have greater joint lengths? \_\_\_\_\_
2. Collect the data for palm widths and joint lengths in millimeters that you and your classmates recorded on journal page 168.

3. Make a table on the back of this page to organize the data.

**Example:**

Student	Palm Width	Joint Length
1	70 mm	30 mm
2		

4. What are the landmarks for this data?

Palm Width

Minimum _____	Maximum _____	Mode _____
Median _____	Mean _____	Range _____

Joint Length

Minimum _____	Maximum _____	Mode _____
Median _____	Mean _____	Range _____

5. What relationships exist between the Palm Width and Joint Length data?

\_\_\_\_\_

6. Explain why the data does or does not support your prediction.

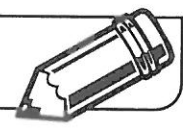
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**LESSON**  
**6•3**

**Using a Half-Circle Protractor**

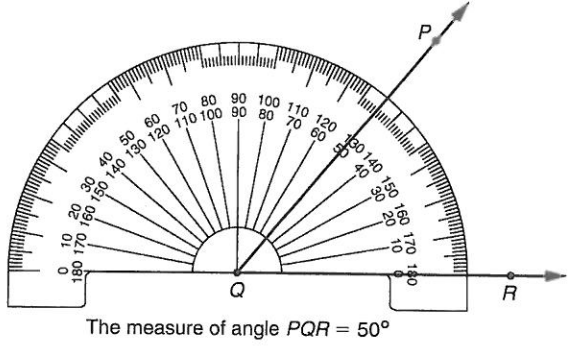


**Example:** To measure angle  $PQR$  with a half-circle protractor:

**Step 1** Lay the baseline of the protractor on  $\overrightarrow{QR}$ .

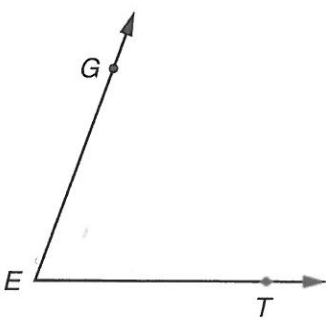
**Step 2** Slide the protractor so the center of the baseline is over the vertex of the angle, point  $Q$ .

**Step 3** Read the degree measure where  $\overrightarrow{QP}$  crosses the edge of the protractor. There are two scales on the protractor. Use the scale that makes sense for the size of the angle you are measuring.

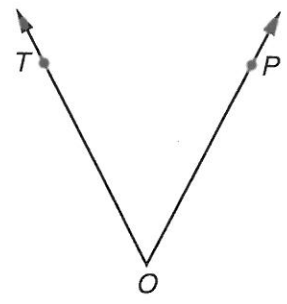


Use your half-circle protractor to find the measures of the angles below.

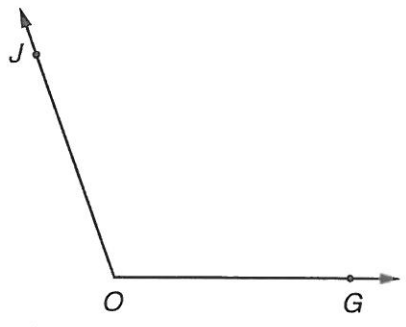
1. The measure of angle  $GET$  is \_\_\_\_\_.



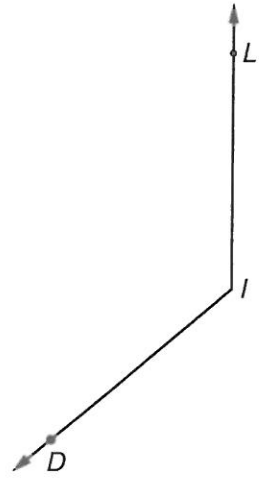
2. The measure of angle  $TOP$  is \_\_\_\_\_.



3. The measure of angle  $JOG$  is \_\_\_\_\_.



4. The measure of obtuse angle  $LID$  is \_\_\_\_\_.



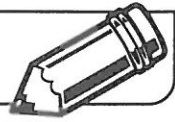
Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

**LESSON**  
**6•4**

# Math Message



Find the minimum, maximum, range, mode, and median for this stem-and-leaf plot.

Unit: inches	<b>Stems</b> (10s)	<b>Leaves</b> (1s)
	4	4 7
	5	0 8 6 0
	6	1 5 3

minimum \_\_\_\_\_

maximum \_\_\_\_\_

range \_\_\_\_\_

mode \_\_\_\_\_

median \_\_\_\_\_



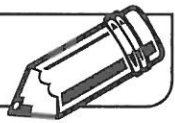
Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

**LESSON**  
**6•4**

# Math Message



Find the minimum, maximum, range, mode, and median for this stem-and-leaf plot.

Unit: inches	<b>Stems</b> (10s)	<b>Leaves</b> (1s)
	4	4 7
	5	0 8 6 0
	6	1 5 3

minimum \_\_\_\_\_

maximum \_\_\_\_\_

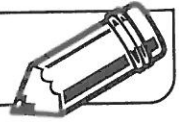
range \_\_\_\_\_

mode \_\_\_\_\_

median \_\_\_\_\_

**LESSON**  
**6•4**

# More Mystery Plots

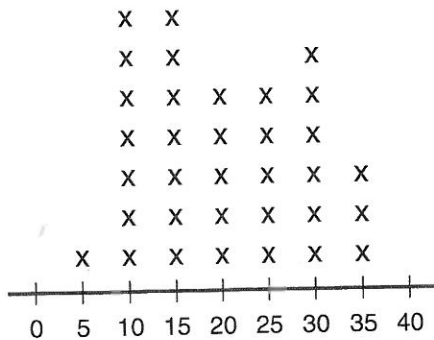


Match each of the following data set descriptions with the appropriate line plot. Then fill in the unit for each plot.

- The number of days students were tardy in the first 2 weeks of school.
- The ages of students participating in organized sports at a community center.
- The number of books read by each of Ms. Wong's fifth-grade students in 1 month.
- The number of minutes it takes each fifth-grade student to get ready for school.

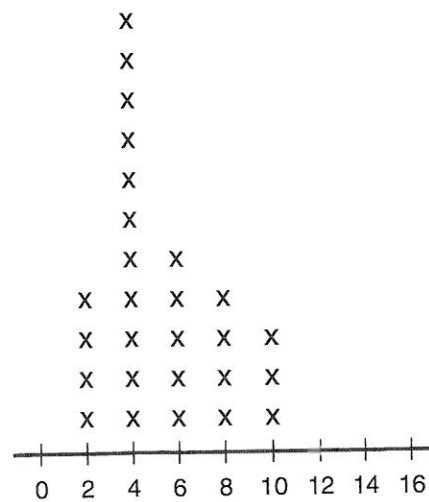
Plot A

Unit: \_\_\_\_\_



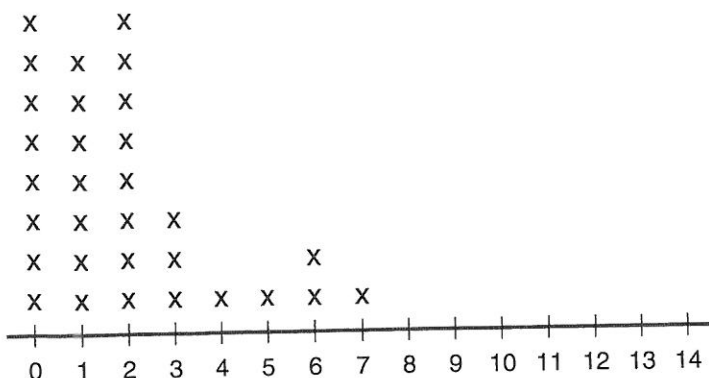
Plot B

Unit: \_\_\_\_\_



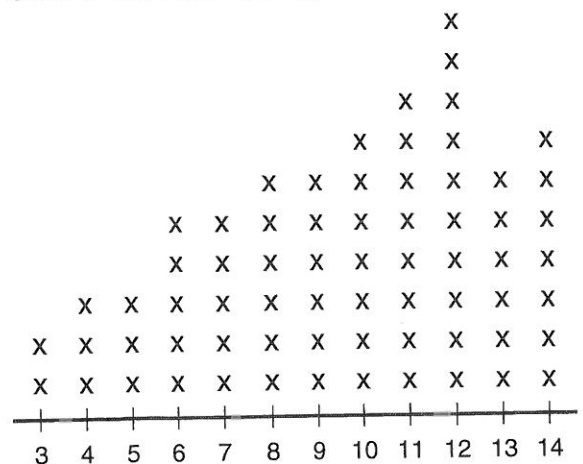
Plot C

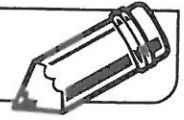
Unit: \_\_\_\_\_



Plot D

Unit: \_\_\_\_\_



**LESSON**  
**6•4****Making the Grade**

Ms. Hallaran has her students collect their spelling test scores for 9 weeks. She asks students if they want her to record the median or mean of their scores. For each set of scores below, which landmark should they choose?

After finding the landmarks for each student, circle the better score.

1. Eliezer's scores: 0, 70, 95, 85, 90, 70, 95, 100, 80

median \_\_\_\_\_ mean \_\_\_\_\_

2. Miles' scores: 100, 80, 80, 80, 95, 80, 95, 100, 80

median \_\_\_\_\_ mean \_\_\_\_\_

3. Charlene's scores: 80, 80, 70, 65, 60, 80, 60, 80, 80

median \_\_\_\_\_ mean \_\_\_\_\_

4. Kiyada's scores: 75, 80, 95, 80, 100, 80, 95, 100, 80

median \_\_\_\_\_ mean \_\_\_\_\_

5. How can they decide which landmark to choose without finding the median and the mean?

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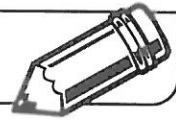
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6. An *outlier* is a data point that is located far from the rest of the data. What score is the outlier in the spelling score data?

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**LESSON**  
**6•5**

# Identify the Whole



In the following number stories, find the whole using parts-and-total diagram. Write the fraction for the given part, and rename the fraction as a percent.

**Example:** Two girls each have 5 hats. Three of their hats are purple. What percent of the hats are purple?

**Solution:**  $2 * 5 = 10$  hats; 3 out of 10 =  $\frac{3}{10}$ ; Rename  $\frac{3}{10}$  as a fraction with 100 as the denominator,  $\frac{10 * 3}{10 * 10} = \frac{30}{100}$ ;  $\frac{30}{100} = 0.30$ , or 30%.

**Reminder:** To use a calculator to convert a fraction to a percent, divide the numerator by the denominator. Use your fix key to round to the nearest hundredth, or multiply the decimal by 100 to display the percent.

1. Lamont, Jose, and Kenji are recycling soda cans. Lamont collects 13 cans. Jose collects 20 cans, and Kenji collects 17 cans. What percent of the cans does Jose collect?

Unit: \_\_\_\_\_ Whole: \_\_\_\_\_

Fraction: \_\_\_\_\_ Percent: \_\_\_\_\_

<b>Total</b>		
?		
<b>Part</b>	<b>Part</b>	<b>Part</b>
13	20	17

2. Jacqui and Edna decide to share their hot lunches. They put together their fried potatoes and their onion rings. There are 33 pieces of fried potatoes and 17 onion rings. What percent of the lunches are the onion rings?

Unit: \_\_\_\_\_ Whole: \_\_\_\_\_

Fraction: \_\_\_\_\_ Percent: \_\_\_\_\_

<b>Total</b>	
?	
<b>Part</b>	<b>Part</b>
33	17

3. The boy's club is having a popcorn sale. Each of the 10 members of the club is given 5 boxes of popcorn, but Edward sells only 3. What percent of the 5 boxes remain for Edward to sell?

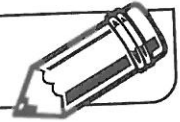
Unit: \_\_\_\_\_ Whole: \_\_\_\_\_

Fraction: \_\_\_\_\_ Percent: \_\_\_\_\_

<b>Total</b>	
5	
<b>Part</b>	<b>Part</b>
3	?

**LESSON**  
**6•5**

# Investigating Sample Size



1. Choose a specific outcome or event for one of the following actions.

◆ Flipping a coin

**Example:** The coin will land heads up. \_\_\_\_\_

◆ Rolling a die

**Example:** The die will land with a 4 on the top. \_\_\_\_\_

2. Predict the results of 10 trials and 100 trials. Report your predictions as the fraction of the total you think will result in a favorable outcome, or favorable event. For example, the coin will land heads up about  $\frac{1}{2}$  of the time, or the die will land with a 4 on the top about  $\frac{1}{6}$  of the time.

Event	10 trials		100 trials		1,000 trials
	Prediction	Result	Prediction	Result	Prediction

3. Perform 10 trials. Record the results first with tally marks on a separate piece of paper and then in the table as a fraction.

4. Repeat for 100 trials. Record the results first with tally marks on a separate piece of paper and then in the table as a fraction.

5. How do your predictions compare with the actual results?

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6. Predict the results for 1,000 trials, and explain your prediction.

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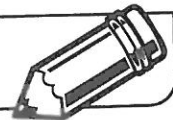
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7. On the back of this page, name two ways you and your partner could get data on the actual results for 1,000 trials.



**LESSON**  
**6•6**

# Stem-and-Leaf Plots



List the data sets for each stem-and-leaf plot on the lines below.

1. Candy bars sold by art club members (Bars)

Stem	Leaves
10s	1s
1	0 1 3
2	5 7 7 8
3	2 4

How many people are in the art club? \_\_\_\_\_

2. Rainy days in April for 10 cities (Days)

Stem	Leaves
10s	1s
0	3 4 5 5
1	0 1 2 3 3
2	1

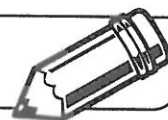
3. Number of people visiting the reptile display at the zoo in one week (People)

Stem	Leaves
100s and 10s	1s
23	3 4 5 9
31	1 3
40	0

4. Seed sprouting time science experiment (Days)

Stem	Leaves
10s	1s
1	0 0 1 2
2	0 1 4 6
3	2 3 4

What was the maximum seed sprouting time? \_\_\_\_\_

**LESSON**  
**6•6**
**Making Stem-and-Leaf Plots**


1. Make a stem-and-leaf plot for the following data:

74, 86, 68, 90, 98, 60, 94, 74, 84, 72, 90, 96, 88, 92, 88, 70, 80, 90, 98, 88,  
 68, 76, 88, 62, 90, 82, 90, 72, 74, 98

	(title)	(unit)
<b>Stem</b>	<b>Leaves</b>	
10s	1s	

2. Find the following landmarks for this set of data.

a. minimum: \_\_\_\_\_

b. maximum: \_\_\_\_\_

c. mode: \_\_\_\_\_

d. median: \_\_\_\_\_

3. Describe a situation in which the data in the stem-and-leaf plot might occur.  
 Then give the plot a title and a unit.

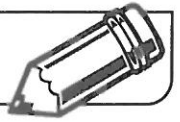
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**LESSON**  
**6•8**
**Locating Fractions on a Ruler**


Locate each fraction or mixed number on the ruler below. Label the location with the letter. The first one is done for you.

A.  $1\frac{6}{8}$

B.  $1\frac{2}{8}$

C.  $3\frac{1}{2}$

D.  $\frac{4}{8}$

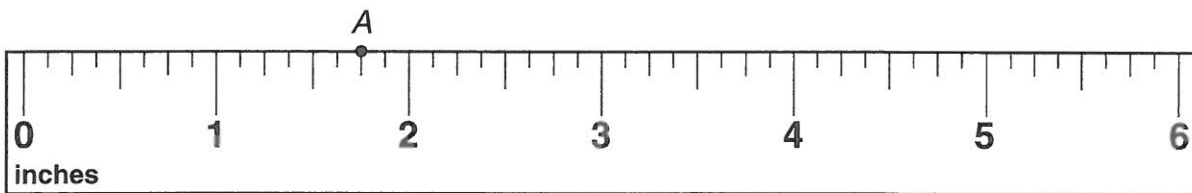
E.  $5\frac{6}{8}$

F. 3

G.  $\frac{6}{8}$

H.  $\frac{3}{2}$

I.  $\frac{9}{2}$



For each label you put on the ruler above, rename the fraction or mixed number as fourths. The first one is done for you.

A.  $1\frac{3}{4}$ , or  $\frac{7}{4}$

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_

E. \_\_\_\_\_

F. \_\_\_\_\_

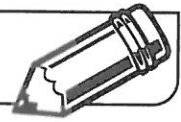
G. \_\_\_\_\_

H. \_\_\_\_\_

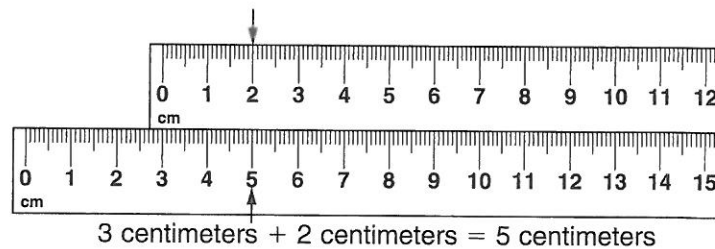
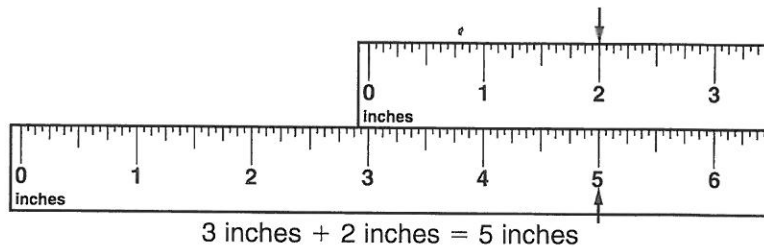
I. \_\_\_\_\_

**LESSON**  
**6•8**

# Slide Rule Scales



The slide rule from the journal uses two number lines with the same scale, or units, to add or subtract. This is like lining up two rulers.



Work with a partner and use Geometry Templates to solve the following problems.

1.  $4\frac{1}{2} + 2$

2.  $2 + 4\frac{1}{2}$

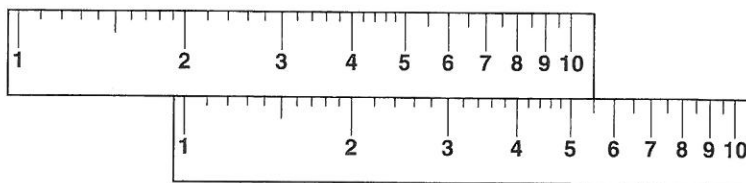
Measure in inches \_\_\_\_\_ in.

Measure in inches \_\_\_\_\_ in.

Measure in centimeters \_\_\_\_\_ cm

Measure in centimeters \_\_\_\_\_ cm

Study the following slide rule.



3. What do you notice about the scale for this slide rule?

\_\_\_\_\_

\_\_\_\_\_

4. What operation is shown? \_\_\_\_\_

5. Write a number sentence for the operation shown on the two rulers. \_\_\_\_\_

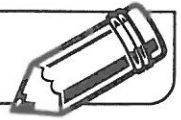
Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

**LESSON**  
**6•9**

# Number Strips



Cut out each of the strips below.



10	20	30	40	50	60	70	80	90	100
----	----	----	----	----	----	----	----	----	-----

4	8	12	16	20	24	28	32	36	40
---	---	----	----	----	----	----	----	----	----

7	14	21	28	35	42	49	56	63	70
---	----	----	----	----	----	----	----	----	----

9	18	27	36	45	54	63	72	81	90
---	----	----	----	----	----	----	----	----	----

6	12	18	24	30	36	42	48	54	60
---	----	----	----	----	----	----	----	----	----

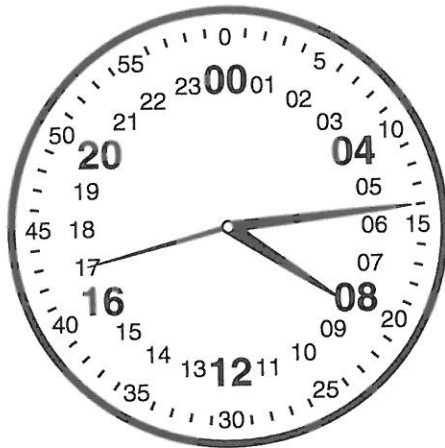
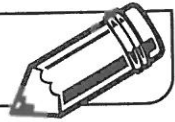
8	16	24	32	40	48	56	64	72	80
---	----	----	----	----	----	----	----	----	----

3	6	9	12	15	18	21	24	27	30
---	---	---	----	----	----	----	----	----	----

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

5	10	15	20	25	30	35	40	45	50
---	----	----	----	----	----	----	----	----	----

2	4	6	8	10	12	14	16	18	20
---	---	---	---	----	----	----	----	----	----

**LESSON**  
**6•9**
**Fractions in Military Time**


<b>Whole</b>
day

On a military clock, the whole is 1 day or 24 hours.  $\frac{1}{24}$  is one hour. The time shown on this clock face is 08:14:42 (8 hours, 14 minutes, and 42 seconds).

Using the clock face, write the fractions as days, hours, and minutes. The first one has been done for you.

1.  $\frac{2}{24} = \frac{1}{12}$  of a day = 2 hours = 120 minutes

2.  $\frac{18}{24} = \frac{\quad}{\quad}$  of a day =  $\quad$  hours =  $\quad$  minutes

3.  $\frac{10}{24} = \frac{\quad}{\quad}$  of a day =  $\quad$  hours =  $\quad$  minutes

4.  $\frac{1}{2}$  hour =  $\frac{\quad}{\quad}$  of a day

5. Explain how you found your answer for Problem 4.

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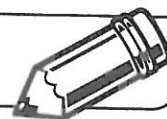
Name \_\_\_\_\_

Date \_\_\_\_\_

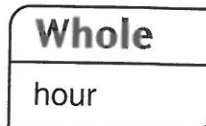
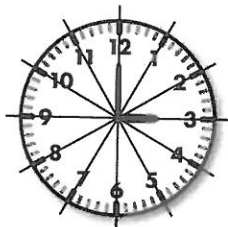
Time \_\_\_\_\_

LESSON  
**6•9**

## Writing Elapsed-Time Number Stories



The numbers on a clock face divide one hour into twelfths. Each  $\frac{1}{12}$  of an hour is 5 minutes.



Use fractions to represent amounts of elapsed time and write a number story for a partner to solve.

### Example:

Maria started her piano practice at 3:15. She practiced for  $\frac{8}{12}$  of an hour. At what time did she finish practicing?

*Think:*  $\frac{1}{12}$  hour = 5 minutes;  $\frac{8}{12}$  hour is  $8 * 5$ , or 40 minutes; 40 minutes more than 3:15 is 3:55.

Maria finished practicing at 3:55.

Your Elapsed-Time Number Story:

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Your Partner's Solution:

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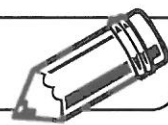
Explain your answer.

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**LESSON**  
**6•10****Common Denominators**

1. For each pair of fractions below:

- ◆ Find a common denominator.
- ◆ Rewrite the fractions with this common denominator.
- ◆ Add the fractions.

Original Fractions	Fractions with a Common Denominator	Sum
$\frac{1}{2}$ and $\frac{3}{4}$		
$\frac{2}{9}$ and $\frac{7}{3}$		
$\frac{3}{8}$ and $\frac{5}{16}$		
$\frac{3}{5}$ and $\frac{9}{20}$		
$\frac{7}{14}$ and $\frac{6}{8}$		
$\frac{8}{10}$ and $\frac{15}{25}$		
$\frac{6}{9}$ and $\frac{8}{12}$		
$\frac{2}{3}$ and $\frac{3}{4}$		
$\frac{1}{5}$ and $\frac{3}{8}$		
$\frac{3}{10}$ and $\frac{6}{7}$		

2. Explain how you found a common denominator for one of the fraction pairs above.

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