LESSON 12·1

Math Message

Name _____

Math Message

There are:

_____ days in 1 week.

_____ hours in 1 day.

_____ months in 1 year.

_____ weeks in 1 year.

_____ seconds in 1 minute.

_____ minutes in 1 hour.

Name _____

Math Message

There are:

_____ days in 1 week.

_____ hours in 1 day.

_____ months in 1 year.

_____ weeks in 1 year.

_____ seconds in 1 minute.

_____ minutes in 1 hour.

Name _____

Math Message

There are:

_____ days in 1 week.

_____ hours in 1 day.

_____ months in 1 year.

_____ weeks in 1 year.

_____ seconds in 1 minute.

_____ minutes in 1 hour.

Name _____

Math Message

There are:

_____ days in 1 week.

_____ hours in 1 day.

_____ months in 1 year.

_____ weeks in 1 year.

_____ seconds in 1 minute.

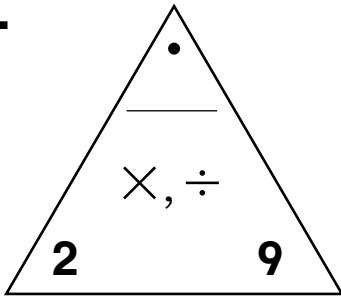_____ minutes in 1 hour.

HOME LINK
12·1

Fact Triangles

Fill in the missing number in each Fact Triangle. Then write the fact family for the triangle.

1.
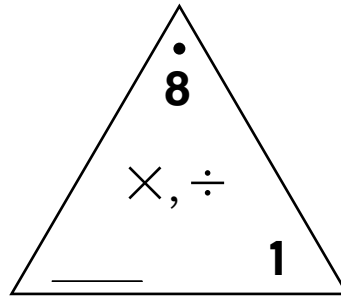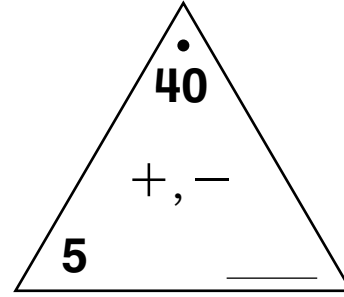
△ ____ / ×,÷ / 2   9

2.

△ 8 / ×,÷ / ____   1

3.

△ 40 / +,− / 5   ____

___ × ___ = ___   ___ × ___ = ___   ___ × ___ = ___

___ × ___ = ___   ___ × ___ = ___   ___ × ___ = ___

___ ÷ ___ = ___   ___ ÷ ___ = ___   ___ ÷ ___ = ___

___ ÷ ___ = ___   ___ ÷ ___ = ___   ___ ÷ ___ = ___

Practice

4. 231
      − 47
     ─────

5. 85
      − 25
     ─────

6. 156
      + 87
     ─────

7. 94
      + 87
     ─────

LESSON 12·1 **Telling Time to the Nearest Five Minutes**

Start at 0. Count by 5s. Fill the numbers of minutes at the
5-minute intervals around the clock face.

1.

0

35
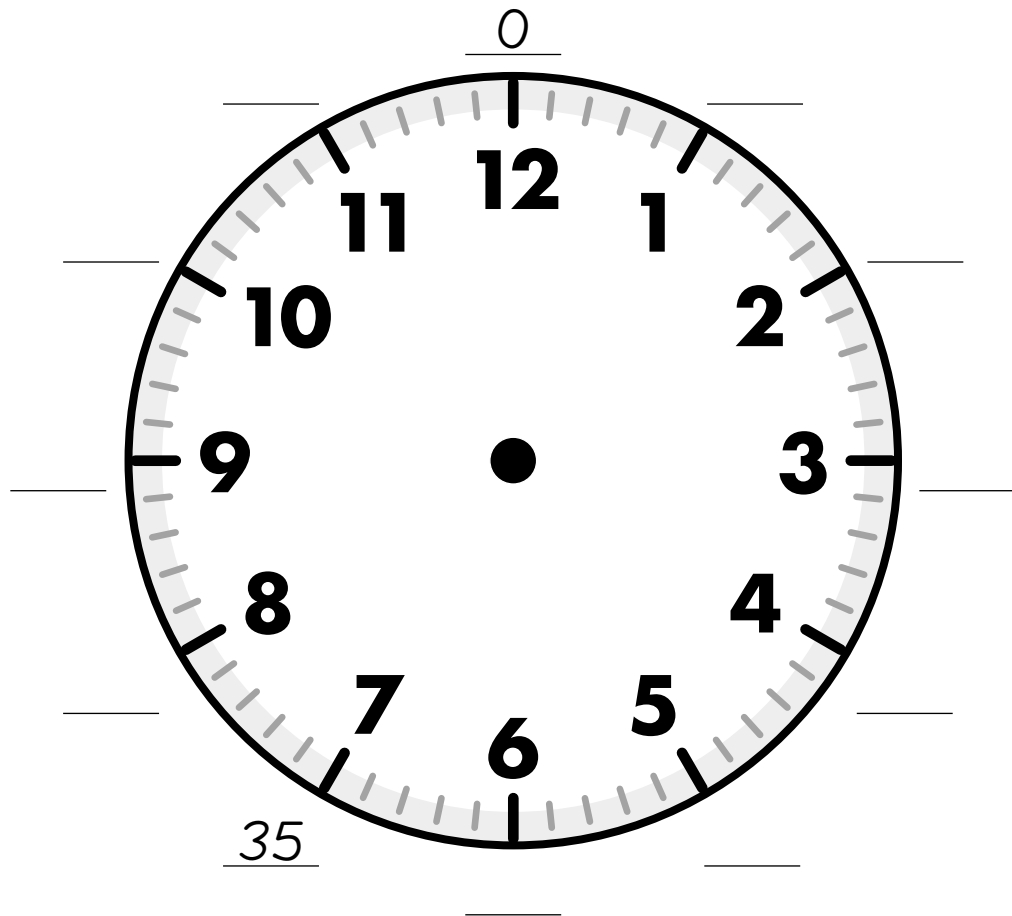
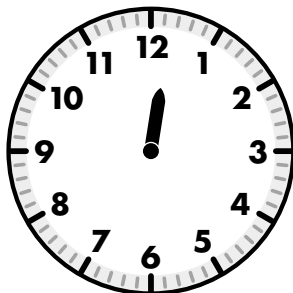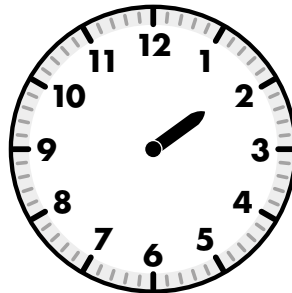Draw the minute hands on the clocks to show the times. Use
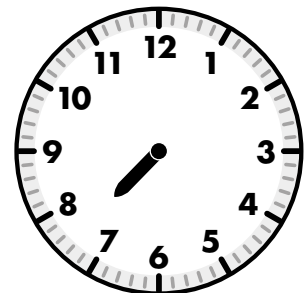the 5-minute intervals to help.

2.

12:20

3.

1:50

4.

7:25

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LESSON 12·1 ## Leap Years

1. Fill in the numbers to show a leap year calendar for February. Circle the date that makes it a leap year.

FEBRUARY						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1					

2. The year 2000 was a leap year. Fill in the Frames-and-Arrows diagram with the other leap years. Write the rule for figuring out leap years.

Rule

2000

380
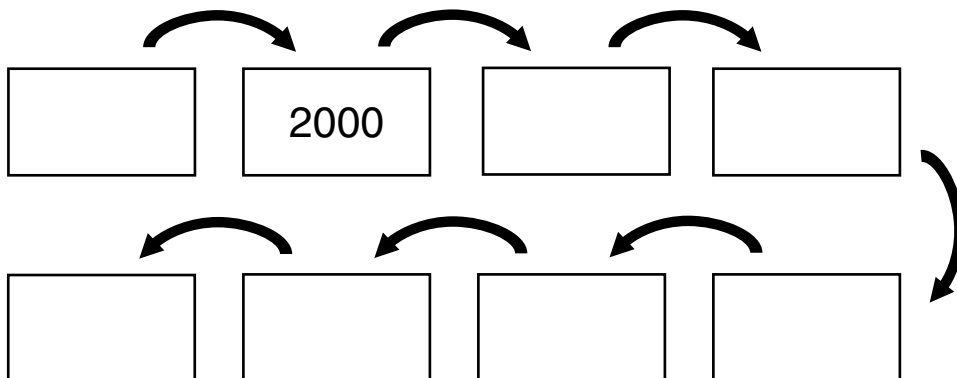
HOME LINK 12·2

Many Names for Times

What time is it? Write the time shown on the clocks.

1.
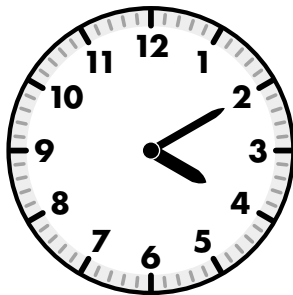
2.
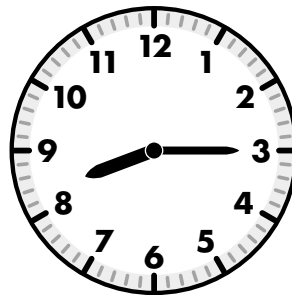
3.

____ : ____   ____ : ____   ____ : ____
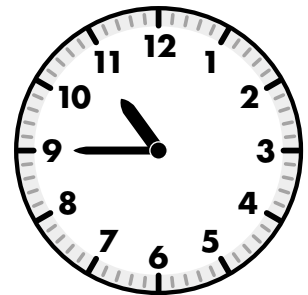
Draw the hour hand and the minute hand to show the time.

4.

5.

6.
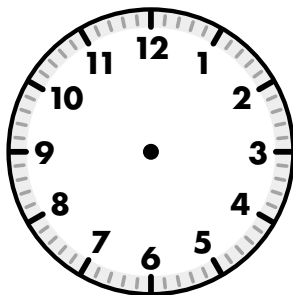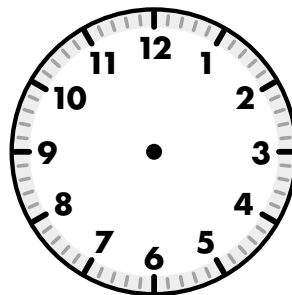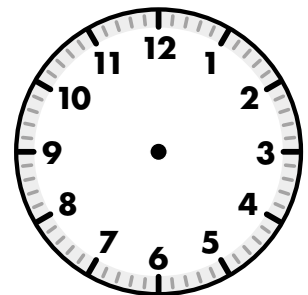
half-past nine   six fifty   quarter-to two

Practice

7. $126 + 43 =$

8. $243 - 101 =$

9. $\begin{array}{r} 38 \\ +53 \\ \hline \end{array}$

10. $\begin{array}{r} 84 \\ -37 \\ \hline \end{array}$

LESSON 12·2 Military Time
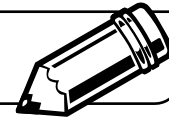
Regular time uses numbers 1 to 12 to identify each of the 24 hours in a day. In military time, the hours are numbered from 00 to 23.

Under this system, midnight is 00; 1 A.M. is 0100 hours; 1 P.M. is 1300 hours; 4 P.M. is 1600 hours.

Complete the table showing regular time and military time.

Regular Time	Military Time (hours)	Regular Time	Military Time (hours)
Midnight	0000	Noon	1200
1:00 A.M.	0100	1:00 P.M.	1300
2:00 A.M.	0200	2:00 P.M.	
3:00 A.M.	0300		
4:00 A.M.			
5:00 A.M.			
6:00 A.M.			
7:00 A.M.			

6 A.M. is the same as _____ hours.

10 P.M. is the same as _____ hours.

Try This

How would you write 3:15 P.M. in military time? Explain your answer.

LESSON 12·2 | **Telling Time to Five Minutes**

Write the time shown on each clock.

1.

____ : ____
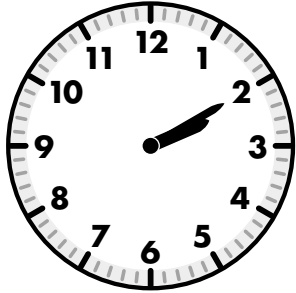
2.

____ : ____

3.

____ : ____
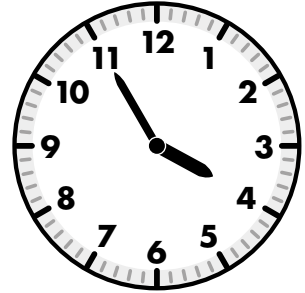
4.

____ : ____

5.

____ : ____
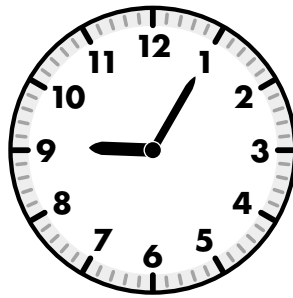
6.

____ : ____
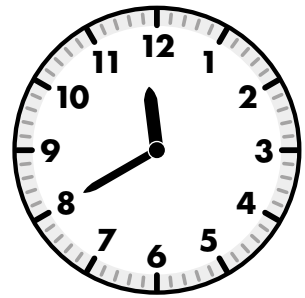
Draw the hour and minute hands to match the time.

7.
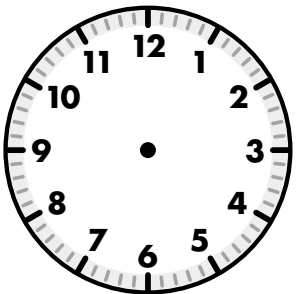
4:55

8.
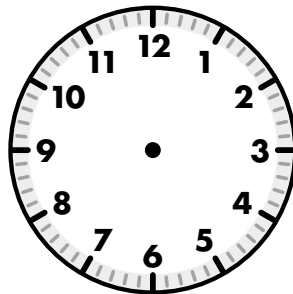
7:25

9.
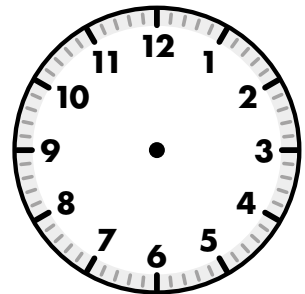
8:05

10.

1:50

11.

6:20

12.

10:40

383
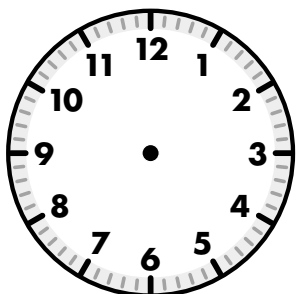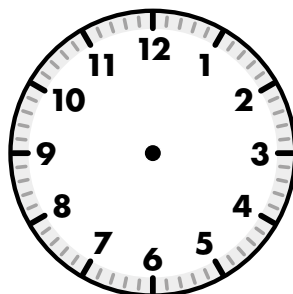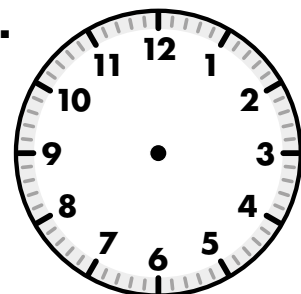
HOME LINK 12·3 | Timelines
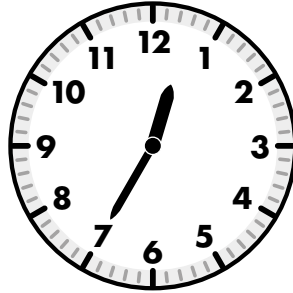
Family Note A timeline is a way to display events in sequential order. Timelines can be divided into intervals, such as centuries, years, months, days, and hours. Observe your child as he or she completes the timeline at the right.

Please return this Home Link to school tomorrow.

Emily's Day at the Beach

1. For each event below, make a dot on the timeline and write the letter for the event above the dot.

   A Ate lunch (12:30 P.M.)

   B Went fishing in a boat (10:00 A.M.)

   C Arrived at the beach (9:00 A.M.)

   D Returned from fishing trip (11:30 A.M.)

   E Played volleyball (1:30 P.M.)

   F Went swimming (2:00 P.M.)

   G Drove home (4:00 P.M.)

   H Built sandcastles (3:00 P.M.)
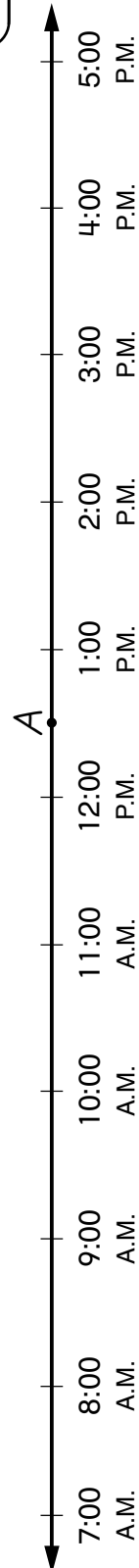
Practice

Solve.

2. 563 − 32 | **Answer** |

3.   263
       + 17 | **Answer** |

Timeline (top to bottom):
5:00 P.M.
4:00 P.M.
3:00 P.M.
2:00 P.M.
1:00 P.M.
A • 12:00 P.M.
11:00 A.M.
10:00 A.M.
9:00 A.M.
8:00 A.M.
7:00 A.M.

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LESSON 12·3 | **Placing Numbers on a Number Line**
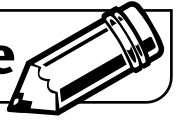
Draw a mark on the number line to show where each number belongs. Write the number below the mark.

Example: Show 95.

```
←——+———————————————————+———————————————————+——→
   90                  95                  100
```
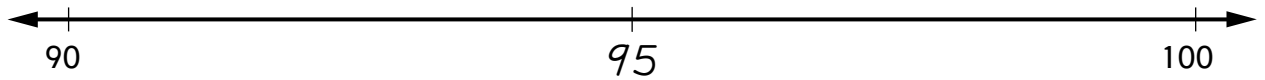
1. Use the number line below.

Show 80.

Show 100.

```
←——+———————————————————+———————————————————+——→
   70                  90                  110
```
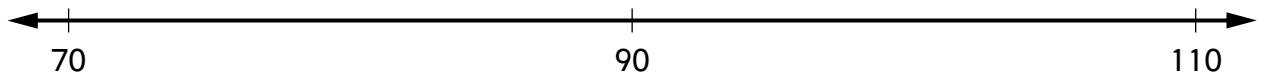
2. Use the number line below.

Show 1900 (the turn of the century).

Show 100 years before you were born.

```
←——+—————————————————————————————————————————+——→
   1850                                      1950
```
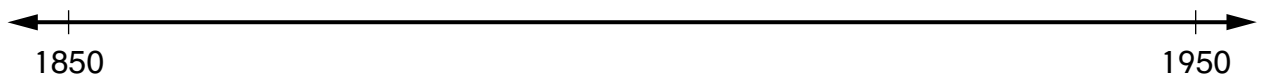
Try This

3. Use the number line below.

Show the year you were born.

Show this year.

```
←——+—————————————————————————————————————————+——→
   1950                                      2050
```

385
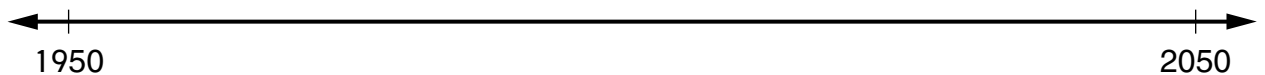
LESSON 12·3 | **Interpreting a Timeline**

1. What is the earliest invention on the timeline

on journal page 295? _____

What is the most recent invention? _____

For each pair of inventions:

> **Reminder:** 1 decade is 10 years.
> 1 century is 100 years.
> 1 century is 10 decades.

   ◆ tell about how many
   decades there were
   between inventions.

   ◆ tell about how many years
   there were between inventions.

2. typewriter and movie machine

about _____ decades   about _____ years

3. phonograph and videocassette

about _____ decades   about _____ years

4. telegraph and CD player

about _____ decades   about _____ years

About how many years ago were these things invented?

5. CD player: about _____ years ago

6. FM radio: about _____ years ago

7. 3-D movies: about _____ years ago

8. typewriter: about _____ years ago

HOME LINK 12·4

×, ÷ Fact Triangles

Cut out the Fact Triangles on these pages. Show someone at home how you can use them to practice multiplication facts.
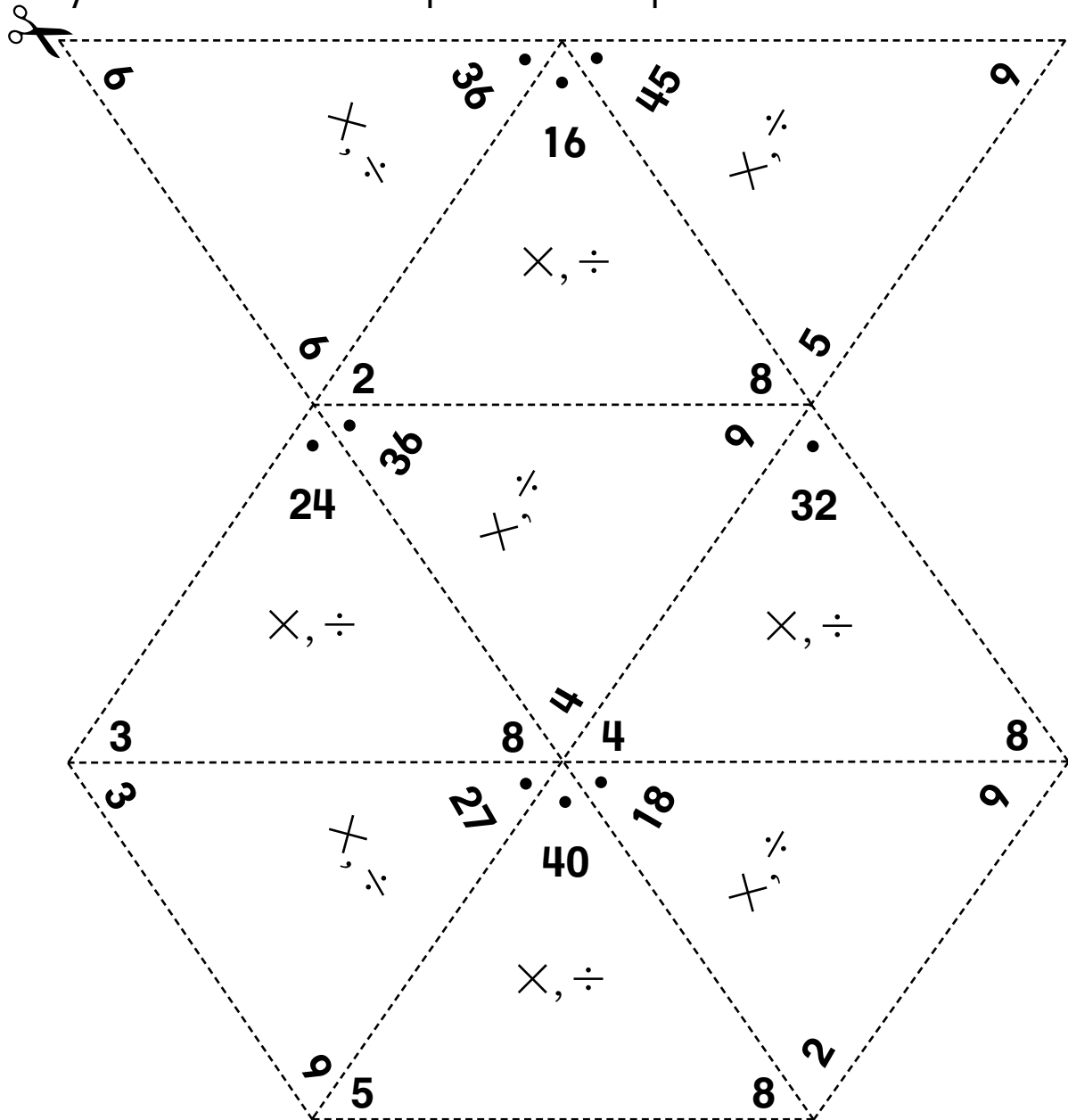
HOME LINK 12·4

×, ÷ Fact Triangles *continued*

388
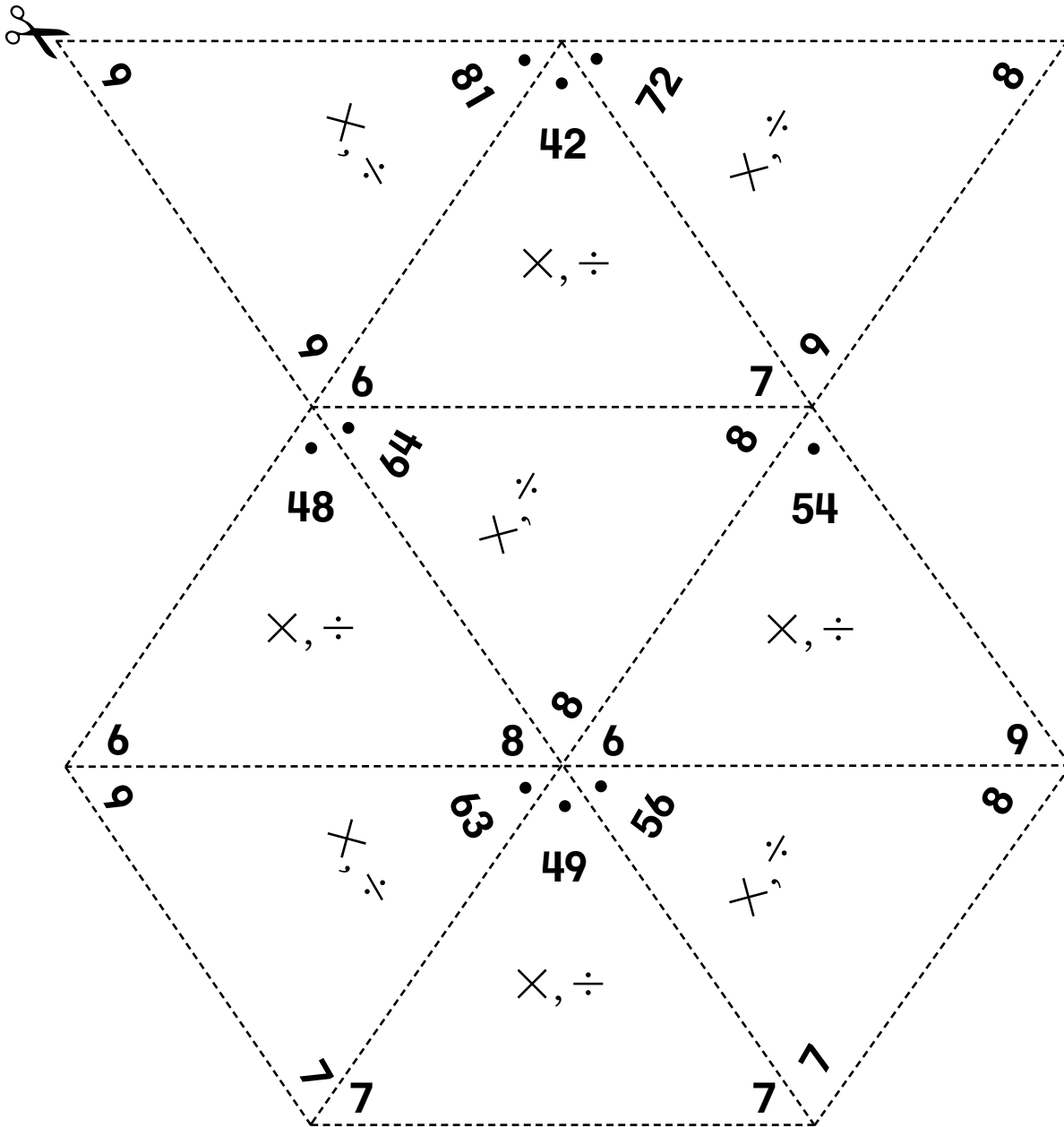
LESSON 12·4 | **Multiplication Arrays**
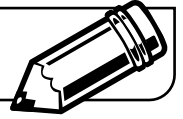
Draw the array for each problem. Then fill in the Fact Triangle to match the arrays.

1. Draw an array for 3 groups of 2.

Number model: $3 \times 2 = ?$
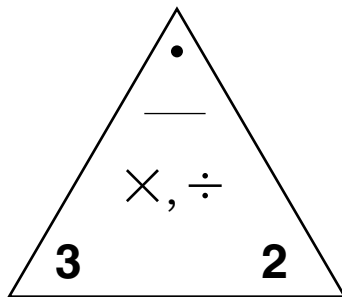
Number model: $3 \times 2 =$ _____

Draw an array for 2 groups of 3.

Number model: $2 \times 3 = ?$
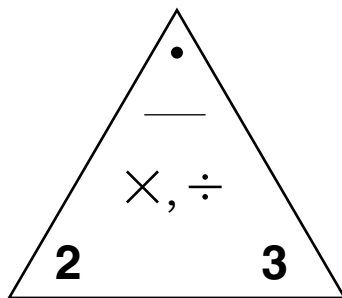
Number model: $2 \times 3 =$ _____

2. Draw an array for 3 groups of 4.

Number model: $3 \times 4 = ?$
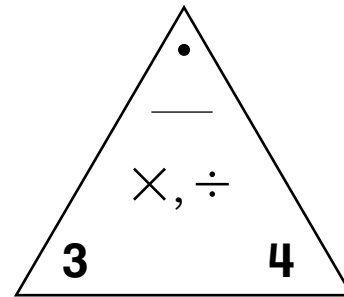
Number model: $3 \times 4 =$ _____

Draw an array for 4 groups of 3.

Number model: $4 \times 3 = ?$
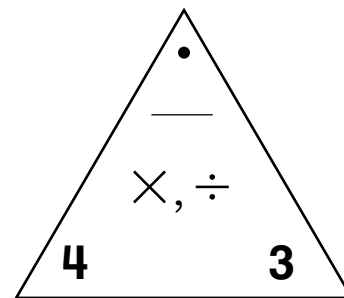
Number model: $4 \times 3 =$ _____

Try This

1. Draw an array for 3 groups of 3.

Number model: $3 \times 3 = ?$

Number model: $3 \times 3 =$ _____

389
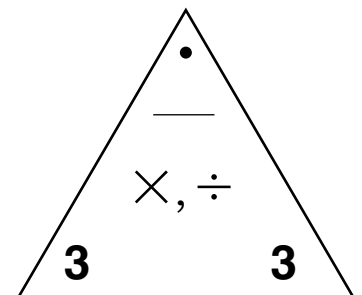
LESSON 12·4 | **A Multiplication Strategy**

To solve 4 × 3, Briana used two steps.

◆ In her first step, she got 6.

◆ In her second step, she got 12. 12 was the answer.

To solve 4 × 7, Briana again used two steps.

◆ In her first step, she got 14.

◆ In her second step, she got 28. 28 was the answer.

Explain Briana's strategy. Then try solving 4 × 8 using Briana's strategy.

_____

_____

_____

_____

_____

HOME LINK
12·5 | **×, ÷ Facts Practice**

> **Family Note**
>
> In this lesson, your child has connected multiplication and division facts by using Fact Triangles and completing fact families. A good way to solve division problems is to think in terms of multiplication. For example, to divide 20 by 5, ask yourself: *5 times what number equals 20?* Since $5 \times 4 = 20$, $20 \div 5 = 4$.
>
> *Please return this Home Link to school tomorrow.*
>
> **MRB**
> **38**

Solve these division facts. Think multiplication.

Use the Fact Triangles to help you.

1. $14 \div 2 =$ _____

Think:
$2 \times ? = 14$
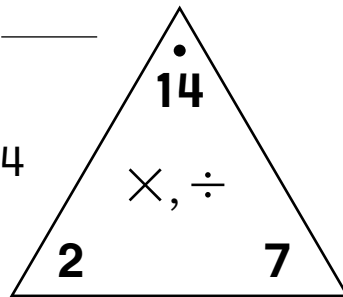
14
×, ÷
2   **7**

2. $24 \div 4 =$ _____

Think:
$4 \times ? = 24$

24
×, ÷
4   **6**

3. $21 \div 3 =$ _____

Think:
$3 \times ? = 21$

21
×, ÷
3   **7**

4. $18 \div 6 =$ _____

Think:
$6 \times ? = 18$

18
×, ÷
6   **3**

5. $28 \div 7 =$ _____

Think:
$7 \times ? = 28$

28
×, ÷
7   **4**

6. $16 \div 4 =$ _____

Think:
$4 \times ? = 16$

16
×, ÷
4   **4**
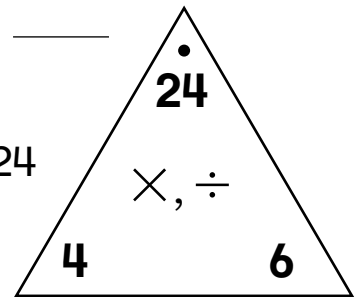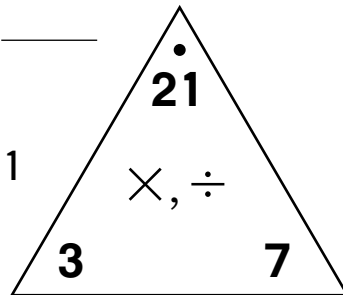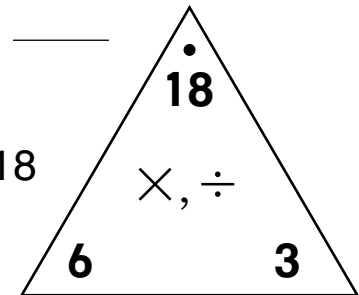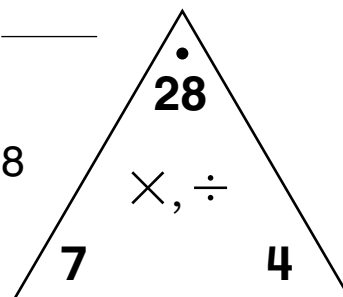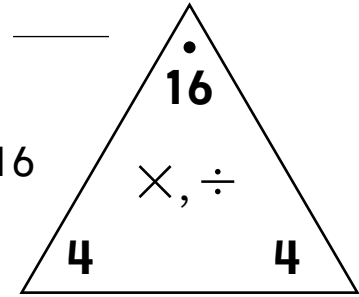
HOME LINK 12·5

×, ÷ Facts Practice *continued*

---

7. $20 \div 5 =$ _____

Think:
$5 \times ? = 20$
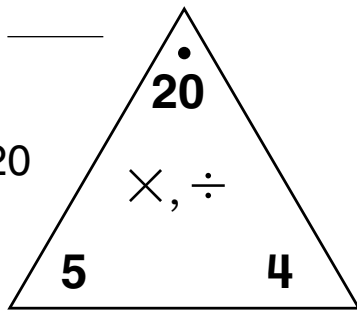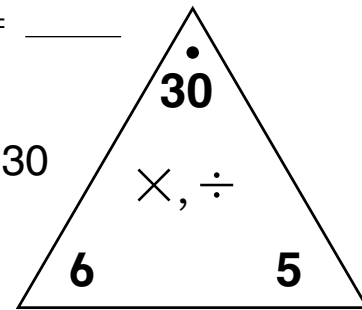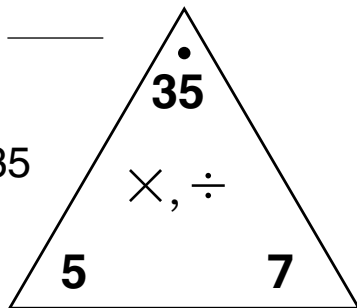
20
×, ÷
5   4

8. $30 \div 6 =$ _____

Think:
$6 \times ? = 30$

30
×, ÷
6   5

---

9. $35 \div 5 =$ _____

Think:
$5 \times ? = 35$

35
×, ÷
5   7

10. $32 \div 4 =$ _____

Think:
$4 \times ? = 32$

32
×, ÷
4   8

---

11. $42 \div 6 =$ _____

Think:
$6 \times ? = 42$

42
×, ÷
6   7

12. $63 \div 7 =$ _____

Think:
$7 \times ? = 63$

63
×, ÷
7   9

---

13. $54 \div 9 =$ _____

Think:
$9 \times ? = 54$

54
×, ÷
6   9

14. $81 \div 9 =$ _____

Think:
$9 \times ? = 81$

81
×, ÷
9   9
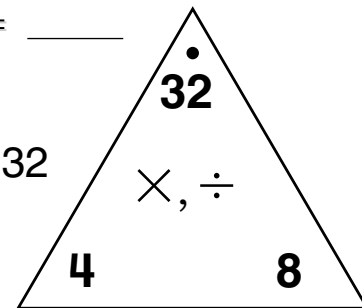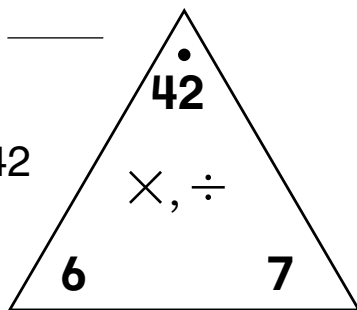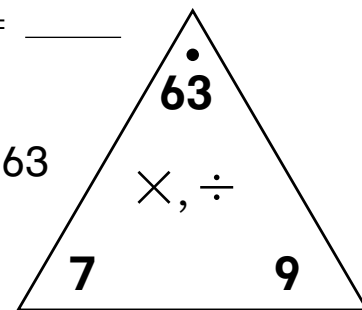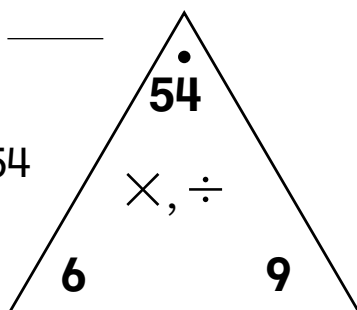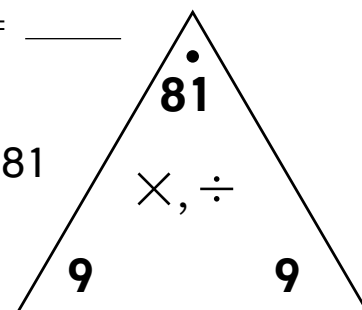
LESSON 12·5 **Equal Rows**

Use counters to build arrays for each problem. Find the number in each row for the arrays.

1. Use 6 counters. Build an array that has 2 rows. How many are in each row? _____

Write a number model to show how you found the number in each row.

Number Model: _____

2. Use 12 counters. Build an array that has 4 rows. How many are in each row? _____

Write a number model to show how you found the number in each row.

Number Model: _____

3. Use 16 counters. Build an array that has 4 rows. How many are in each row? _____

Write a number model to show how you found the number in each row.

Number Model: _____

Try This

4. Use _____ counters. Build an array that has _____ rows. How many are in each row? _____

Write a number model to show how you found the number in each row.

Number Model: _____

LESSON 12·5 **"What's My Rule?"**

Complete the tables in Problems 1–3.

1.

Rule
×2

in	out
3	
5	
	14
8	
	12

2.

Rule
×10

in	out
2	
4	
	50
7	
	100

3.

Rule
×5

in	out
0	
3	
	50
8	
	100

Complete the table and write the rule.

Complete the table and write the rule.

Write a rule of your own. Fill in the table.

4.

Rule

in	out
1	2
2	4
	6
5	
8	16

5.

Rule

in	out
2	8
3	12
5	
6	24
	40

6.

Rule

in	out

HOME LINK
12·6

Typical Life Spans

MRB 44

Typical Life Spans

1. About how long do horses live? _____ years

2. Which animals live longer than an ostrich?

   _____

3. About how much longer do lions live than house cats?
   _____ years

4. Which animal lives about twice as long as lions? _____

HOME LINK 12·6

Typical Life Spans *continued*

5. List the animals in order from the shortest life span to the longest life span.

Life Spans	
Animal	**Years**
shortest:	
longest:	

6. What is the middle value? _____ years
This is the **median.**

Practice

7. 71 + 59 =

8.   121
        + 35

9. 68 − 39 =

10.   125
        −   38

LESSON 12·6 **Distances**
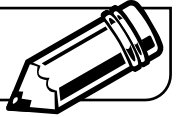
Distances athletic adults can travel in 10 seconds:
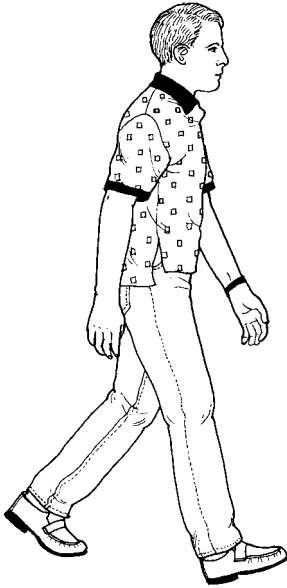
Walking 125 feet

Cross-country skiing 200 feet

Ice-skating 450 feet
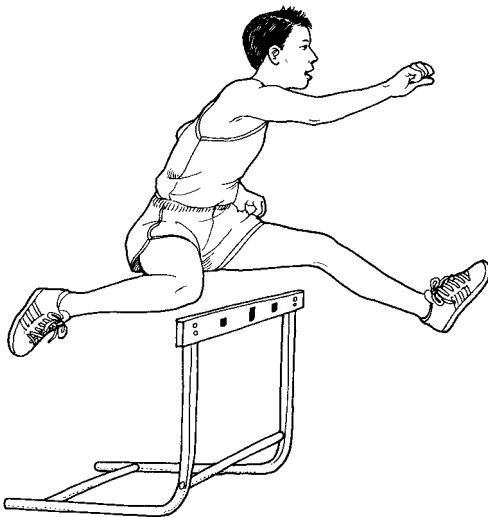
Running hurdles 275 feet
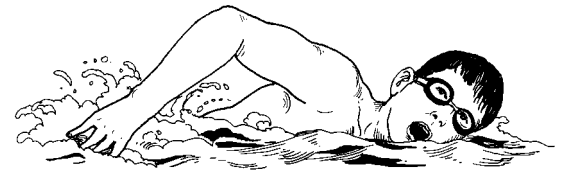
Swimming 75 feet

Running 325 feet

LESSON 12·6 | **Graphing Information**

1. Complete the graph below with the information on *Math Masters,* page 397.

Distances Athletic Adults Can Travel in 10 Seconds

Walking

Ice-skating

Cross-country skiing

Running

Running hurdles

Swimming

0   100   200   300   400   500   600
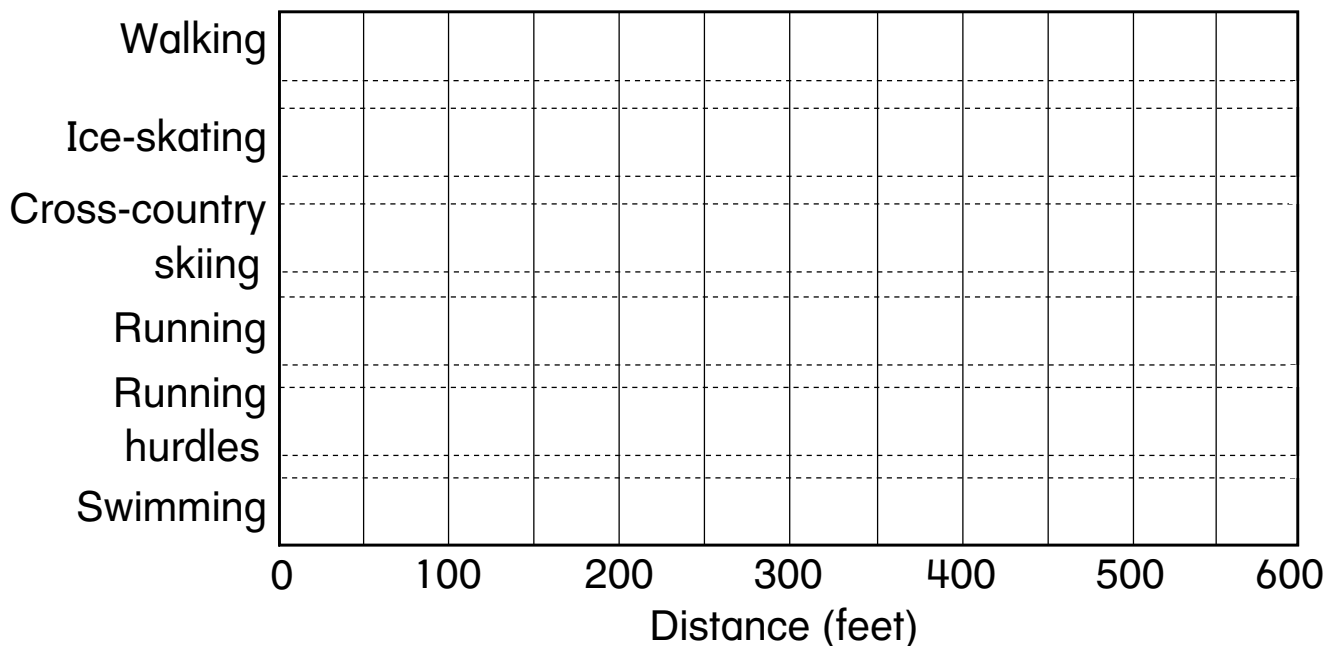
Distance (feet)

Interpret the graph.

2. The longest distance is _____ feet.

   The shortest distance is _____ feet.

   The difference between the longest distance and the shortest distance (range) is _____ feet.

3. What is a middle value of the distances on your graph? _____ feet

4. About how much distance can a cross-country skier cover:

   in 20 seconds? _____ feet

   in 30 seconds? _____ feet

   in 1 minute? _____ feet

LESSON 12·6 | **Observing the Sleeping Hours of Animals**

Use the graph below to answer the following questions.

How Much Sleep Does an Animal Need?

Animal	Hours
Sloth	(bar to ~20)
Dog	(bar to ~11)
Elephant	(bar to ~4)
Hamster	(bar to ~14)
Squirrel	(bar to ~14)
House cat	(bar to ~13)
Giraffe	(bar to ~2)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

Number of Hours per Day
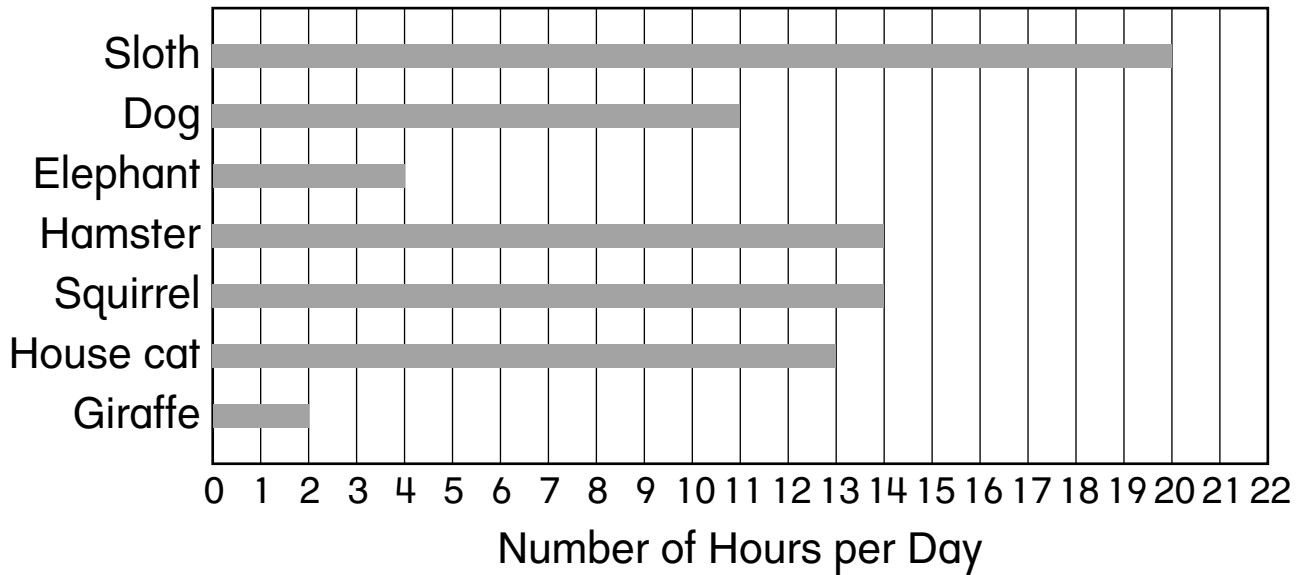
1. Which animal sleeps the most?
   (maximum) _____ How long? _____ hours

2. Which animal sleeps the least?
   (minimum)_____ How long? _____ hours

3. What is the range (difference) between the longest and shortest
   time animals sleep in a day? _____ hours

4. What is the median (middle value) number of hours of
   sleep? _____

5. What is the mode (number that occurs most often) number of
   hours of sleep? _____

6. How many hours do you sleep per night?
   _____ hours

399

HOME LINK
12·7

Interpret a Bar Graph

Family Note In class today, your child interpreted graphs and identified the greatest value, the least value, the range, the middle value (the median), and the mode. The mode is the value or category that occurs most often in a set of data. For example, in the bar graph below, the river length of 1,450 miles is the mode.

Please return this Home Link to school tomorrow.

MRB
44

Approximate Lengths of Rivers

Arkansas		
Rio Grande		
Ohio		
Yukon		
Colorado		

1,200 1,300 1,400 1,500 1,600 1,700 1,800 1,900 2,000
Miles
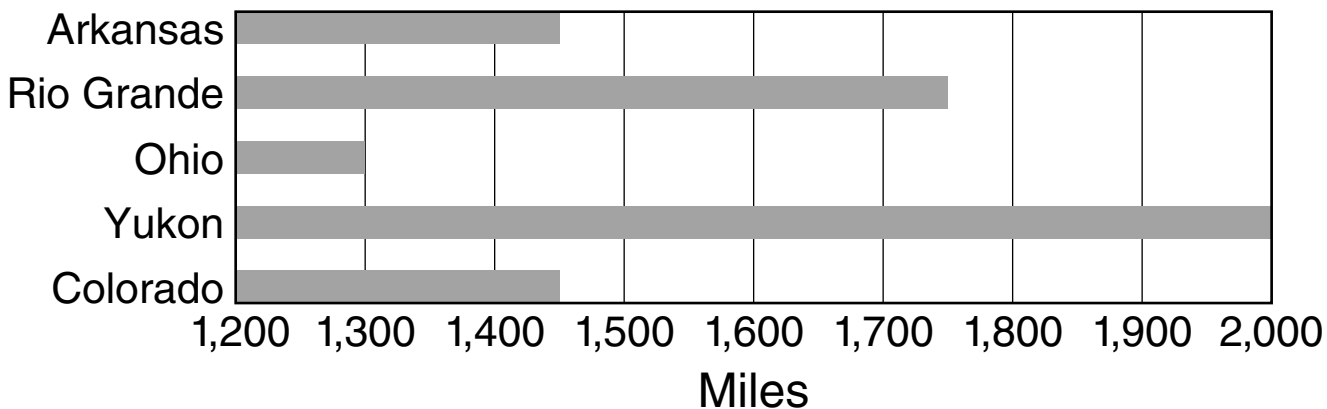
1. a. What is the length of the Colorado River? About _____ miles

    b. Of the Rio Grande? About _____ miles

2. a. What is the length of the longest river? About _____ miles

    b. What is the length of the shortest river? About _____ miles

    c. What is the difference in length between the longest and the

    shortest rivers? About _____ miles. This is the **range.**

3. Which river length occurs most often? About _____ miles
This is the **mode.**

4. What is the middle length of the rivers? About _____ miles
This is the **median.**

LESSON 12·7 | Landmarks of a Data Set
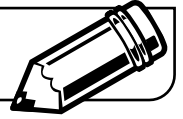
The Children's Book Club members went to the library to check out books. Jim recorded the number of books each child checked out. This is what he found:

The minimum number of books is 1.

The maximum number of books is 6.

The mode number of books is 3.

The median number of books is 3.

The range for the number of books children check out is 5.

Explain what each landmark means.

_____

_____

_____

_____

_____

_____

Circle the graph that shows Jim's data.

Books Checked Out

Number of Children

Number of Books

Books Checked Out

Number of Children

Number of Books

401

HOME LINK 12·8 | Family Letter
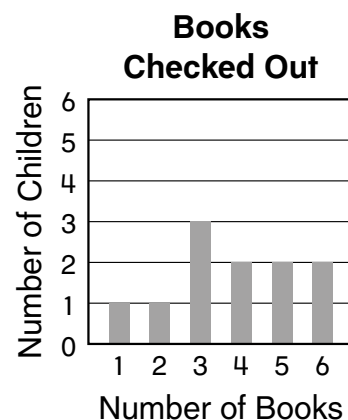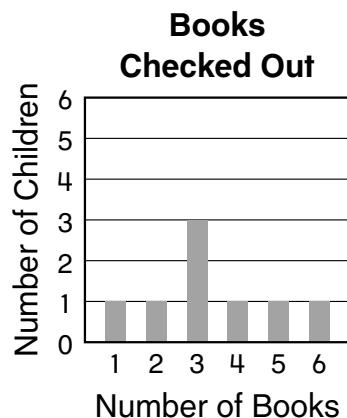
Congratulations!

By completing *Second Grade Everyday Mathematics,* your child has accomplished a great deal. Thank you for your support!

This Family Letter is provided as a resource for you to use throughout your child's vacation. It includes an extended list of Do-Anytime Activities, directions for games that can be played at home, an Addition/Subtraction Facts Table, and a sneak preview of what your child will be learning in *Third Grade Everyday Mathematics.* Enjoy your vacation!

Do-Anytime Activities

Mathematics concepts are more meaningful when they are rooted in real-life situations. To help your child review some of the concepts he or she has learned in second grade, we suggest the following activities for you and your child to do together over vacation. These activities will help your child build on the skills learned this year and help prepare him or her for *Third Grade Everyday Mathematics.*

1. Fill in blank calendar pages for the vacation months, including special events and dates. Discuss the number of weeks of vacation, days before school starts, and so on.

2. Continue to ask the time. Encourage alternate ways of naming time, such as *twenty to nine* for 8:40 and *quarter-past five* for 5:15.

3. Continue to review and practice basic facts for all operations, especially those for addition and subtraction.

4. Use Fact Triangle cards to practice basic multiplication and division facts, such as the following:

$2 \times 2 = 4$	$4 \div 2 = 2$
$2 \times 3 = 6$	$6 \div 2 = 3$
$2 \times 4 = 8$	$8 \div 2 = 4$
$2 \times 5 = 10$	$10 \div 2 = 5$
$3 \times 4 = 12$	$12 \div 3 = 4$
$3 \times 3 = 9$	$9 \div 3 = 3$
$4 \times 4 = 16$	$16 \div 4 = 4$
$3 \times 5 = 15$	$15 \div 3 = 5$
$4 \times 5 = 20$	$20 \div 4 = 5$

Building Skills through Games

The following section describes games that can be played at home. The number cards used in some games can be made from 3" by 5" index cards or from a regular playing-card deck.

Addition Top-It

Materials	☐ 4 cards for each of the numbers 0–10 (1 set for each player)
Players	2 or more
Skill	Add, subtract, or multiply two numbers

Object of the Game To have the most cards

Directions

Players combine and shuffle their cards and place them in a deck, facedown. Each player turns up a pair of cards from the deck and says the sum of the numbers. The player with the greater sum takes all the cards that are in play. The player with the most cards at the end of the game is the winner. Ties are broken by drawing again—winner takes all.

Variation: Subtraction Top-It

Partners pool and shuffle their 0–20 number cards. Each player turns up a pair of cards from the facedown deck and says the difference between them. The player with the greater difference gets all four cards. The player with more cards at the end of the game is the winner.

Variation: Multiplication Top-It

Players find the product of the numbers instead of the sum or difference. Use the 0–10 number cards.

Pick-a-Coin

Materials	☐ regular die
	☐ record sheet (see example)
	☐ calculator
Players	2 or 3
Skill	Add coin and dollar amounts

Sample Record Sheet

	Ⓟ	Ⓝ	Ⓓ	Ⓠ	$1	Total
1st turn	2	1	4	5	3	$ 4.72
2nd turn						$ __.__
3rd turn						$ __.__
4th turn						$ __.__
					Grand Total	$ __.__

Object of the Game To have the highest total

Directions

Players take turns. At each turn, a player rolls a die five times. After each roll, the player records the number that comes up on the die in any one of the empty cells for that turn on his or her Record Sheet. Then the player finds the total amount and records it in the table.

After four turns, each player uses a calculator to find his or her grand total. The player with the highest grand total wins.

Multiplication Draw

Materials	☐ number cards 1, 2, 3, 4, 5, 10 (4 of each)
	☐ record sheet (1 for each player)
	☐ calculator
Players	2–4
Skill	Multiply two numbers
Object of the Game	To have the highest total

Multiplication Draw Record Sheet

1st Draw: _____ × _____ = _____

2nd Draw: _____ × _____ = _____

3rd Draw: _____ × _____ = _____

4th Draw: _____ × _____ = _____

5th Draw: _____ × _____ = _____

Sum of products: _____

Directions

Shuffle the cards and place the deck facedown on the playing surface. At each turn, players draw two cards from the deck to make up a multiplication problem. They record the problem on a record sheet and write the answer. If the answer is incorrect, it will not be counted. After five turns, players use a calculator to find the total of their correct answers. The player with the highest total wins.

Name That Number

|	
Materials	☐ number cards 0–10 (4 of each)
	☐ number cards 11–20 (1 of each)
Players	2 or 3
Skill	Add, substract, multiply, or divide two numbers to reach a target number
Object of the Game	To have the most cards

Directions

Shuffle the deck of cards and place it facedown on the table. Turn the top five cards faceup and place them in a row. Turn over the next card. This is the target number for the round.

In turn, players try to name the target number by adding, subtracting, multiplying, or dividing the numbers on 2 or more of the 5 cards that are number-side up. A card may be used only once for each turn. If you can name the target number, take the cards you used to name it. Also take the target-number card. Then replace all the cards you took by drawing from the top of the deck. If you cannot name the target number, your turn is over. Turn over the top card of the deck and lay it down on the target-number pile. The number on this card is the new target number.

Play continues until there are not enough cards left in the deck to replace the players' cards. The player who has taken the most cards at the end wins. Sample turn:
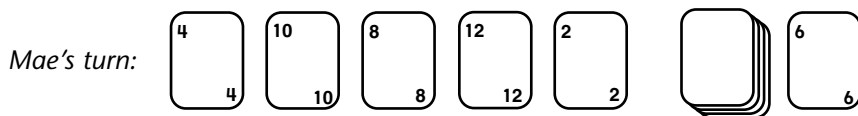
Mae's turn:

The target number is 6. Mae names it with $12 - 4 - 2$. She also could have used $4 + 2$ or $8 - 2$.

Mae takes the 12, 4, 2, and 6 cards. She replaces them by drawing cards from the facedown deck and then turns over and lays down the next card to replace the 6. Now it is Mike's turn.

Fact Power

Addition/subtraction fact families can also be practiced by using the Addition/Subtraction Facts Table. This table can be used to keep a record of facts that have been learned as well.

+,−	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

Looking Ahead:
Third Grade Everyday Mathematics

Next year, your child will …

◆ Explore the relationship between multiplication and division

◆ Extend multiplication and division facts to multiples of 10, 100, and 1,000

◆ Use parentheses in writing number models

◆ Record equivalent units of length

◆ Use number models to find the areas of rectangles

◆ Explore 2- and 3-dimensional shapes and other geometric concepts

◆ Read and write numbers up to 1,000,000

◆ Work with fractions and decimals

◆ Collect data for yearlong sunrise/sunset and high/low temperature projects

◆ Use map scales to estimate distances

Again, thank you for your support this year. Have fun continuing your child's mathematics experiences throughout the vacation!