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Foreword

Math Mammoth Grade 3 comprises a complete math curriculum for the third grade mathematics studies. The curriculum meets and exceeds the Common Core standards.

The main areas of study in Math Mammoth Grade 3 are:

1. Students develop an understanding of multiplication and division of whole numbers through problems involving equal-sized groups, arrays, and area models. They learn the relationship between multiplication and division, and solve many word problems involving multiplication and division (chapters 3, 4, and 8).
2. Students develop an understanding of fractions, beginning with unit fractions. They compare fractions by using visual models and strategies based on noticing equal numerators or denominators (chapter 11).
3. Students learn the concepts of area and perimeter. They relate area to multiplication and to addition, recognize perimeter as a linear measure (in contrast with area), and solve problems involving area and perimeter (chapter 10).
4. Students fluently add and subtract within 1,000, both mentally and in columns. They also learn to add and subtract four-digit numbers, and use addition and subtraction in problem solving in many contexts, such as with money, time, and geometry (chapters 1, 2, and 7).

Additional topics we study are time, money, measuring, and graphs.

This book, 3-A, covers addition and subtraction (chapters 1-2), the concept of multiplication (chapter 3), the multiplication tables (chapter 4), time (chapter 5), and money (chapter 6). The rest of the topics are in the 3-B worktext.

I heartily recommend that you read the full user guide in the following pages.

I wish you success in teaching math!

Maria Miller, the author

User Guide

Note: You can also find the information that follows online, at **https://www.mathmammoth.com/userguides/** .

The Common Core Standards documentation is available at:
https://www.mathmammoth.com/preview/standards/MathMammoth_CommonCore_Alignment_Grade3_2024ed.pdf

Basic principles in using Math Mammoth Complete Curriculum

Math Mammoth is mastery-based, which means it concentrates on a few major topics at a time, in order to study them in depth. The two books (parts A and B) are like a "framework", but you still have a lot of liberty in planning your child's studies. You can even use it in a *spiral* manner, if you prefer. Simply have your student study in 2-3 chapters simultaneously. In third grade, I suggest studying chapters 1-4 in order, but you can be flexible with the other chapters and schedule them earlier or later.

Math Mammoth is not a scripted curriculum. In other words, it is not spelling out in exact detail what the teacher is to do or say. Instead, Math Mammoth gives you, the teacher, various tools for teaching:

- **The two student worktexts** (parts A and B) contain all the lesson material and exercises. They include the explanations of the concepts (the teaching part) in blue boxes. The worktexts also contain some advice for the teacher in the "Introduction" of each chapter.

  The teacher can read the teaching part of each lesson before the lesson, or read and study it together with the student in the lesson, or let the student read and study on his own. If you are a classroom teacher, you can copy the examples from the "blue teaching boxes" to the board and go through them on the board.

- There are hundreds of **videos** matched to the curriculum available at https://www.mathmammoth.com/videos/ . There isn't a video for every lesson, but there are dozens of videos for each grade level. You can simply have the author teach your child or student!

- Don't automatically assign all the exercises. Use your judgment, trying to assign just enough for your student's needs. You can use the skipped exercises later for review. For most students, I recommend to start out by assigning about half of the available exercises. Adjust as necessary.

- Each chapter introduction contains a **list of links to various free online games** and activities. These games can be used to supplement the math lessons, for learning math facts, or just for some fun.

- The student books contain some **mixed review lessons**, and the curriculum also provides you with additional **cumulative review lessons**.

- There is a **chapter test** for each chapter of the curriculum, and a comprehensive end-of-year test.

- The **worksheet maker** allows you to make additional worksheets for most calculation-type topics in the curriculum. This is a single html file. You will need Internet access to be able to use it.

- You can use the free online exercises at https://www.mathmammoth.com/practice/
  This is an expanding section of the site, so check often to see what new topics we are adding to it!

- Some grade levels have **cut-outs** to make fraction manipulatives or geometric solids.

- And of course there are answer keys to everything.

How to get started

Have ready the first lesson from the student worktext. Go over the first teaching part (within the blue boxes) together with your child. Go through a few of the first exercises together, and then assign some problems for your child to do on their own.

Repeat this if the lesson has other blue teaching boxes. Naturally, you can also use the videos at https://www.mathmammoth.com/videos/

Many students can eventually study the lessons completely on their own — the curriculum becomes self-teaching. However, students definitely vary in how much they need someone to be there to actually teach them.

Pacing the curriculum

Each chapter introduction contains a suggested pacing guide for that chapter. You will see a summary on the right. (This summary does not include time for optional tests.)

Most lessons are 2 or 3 pages long, intended for one day. Some 3-page lessons can take two days. Some lessons are 4-5 pages and can be covered in two days. There are also a few optional lessons (not included in the tables on the right).

It can also be helpful to calculate a general guideline as to how many pages per week the student should cover in order to go through the curriculum in one school year.

Worktext 3-A	
Chapter 1	10 days
Chapter 2	14 days
Chapter 3	13 days
Chapter 4	19 days
Chapter 5	14 days
Chapter 6	10 days
TOTAL	**80 days**

Worktext 3-B	
Chapter 7	11 days
Chapter 8	11 days
Chapter 9	11 days
Chapter 10	22 days
Chapter 11	15 days
TOTAL	**70 days**

The table below lists how many pages there are for the student to finish in this particular grade level, and gives you a guideline for how many pages per day to finish, assuming a 180-day (36-week) school year. The page count in the table below *includes* the optional lessons.

Example:

Grade level	School days	Days for tests and reviews	Lesson pages	Days for the student book	Pages to study per day	Pages to study per week
3-A	93	12	205	81	2.5	12.7
3-B	87	10	193	77	2.5	12.5
Grade 3 total	180	22	398	158	2.5	12.6

The table below is for you to fill in. Allow several days for tests and additional review before tests — I suggest at least twice the number of chapters in the curriculum. Then, to get a count of "pages to study per day", **divide the number of lesson pages by the number of days for the student book**. Lastly, multiply this number by 5 to get the approximate page count to cover in a week.

Grade level	Number of school days	Days for tests and reviews	Lesson pages	Days for the student book	Pages to study per day	Pages to study per week
3-A						
3-B						
Grade 3 total						

Now, something important. Whenever the curriculum has lots of similar practice problems (a large set of problems), feel free to **only assign 1/2 or 2/3 of those problems**. If your student gets it with less amount of exercises, then that is perfect! If not, you can always assign the rest of the problems for some other day. In fact, you could even use these unassigned problems the next week or next month for some additional review.

In general, 1st-2nd graders might spend 25-40 minutes a day on math. Third-fourth graders might spend 30-60 minutes a day. Fifth-sixth graders might spend 45-75 minutes a day. If your student finds math enjoyable, they can of course spend more time with it! However, it is not good to drag out the lessons on a regular basis, because that can then affect the student's attitude towards math.

Working space, the usage of additional paper and mental math

The curriculum generally includes working space directly on the page for students to work out the problems. However, feel free to let your students use extra paper when necessary. They can use it, not only for the "long" algorithms (where you line up numbers to add, subtract, multiply, and divide), but also to draw diagrams and pictures to help organize their thoughts. Some students won't need the additional space (and may resist the thought of extra paper), while some will benefit from it. Use your discretion.

Some exercises don't have any working space, but just an empty line for the answer (e.g. 200 + _____ = 1,000). Typically, I have intended that such exercises to be done using MENTAL MATH.

However, there are some students who struggle with mental math (often this is because of not having studied and used it in the past). As always, the teacher has the final say (not me!) as to how to approach the exercises and how to use the curriculum. We do want to prevent extreme frustration (to the point of tears). The goal is always to provide SOME challenge, but not too much, and to let students experience success enough so that they can continue to enjoy learning math.

Students struggling with mental math will probably benefit from studying the basic principles of mental calculations from the earlier levels of Math Mammoth curriculum. To do so, look for lessons that list mental math strategies. They are taught in the chapters about addition, subtraction, place value, multiplication, and division. My article at https://www.mathmammoth.com/lessons/practical_tips_mental_math also gives you a summary of some of those principles.

Using tests

For each chapter, there is a **chapter test**, which can be administered right after studying the chapter. **The tests are optional.** Some families might prefer not to give tests at all. The main reason for the tests is for diagnostic purposes, and for record keeping. These tests are not aligned or matched to any standards.

In the digital version of the curriculum, the tests are provided as PDF files. You can edit them (such as to change the numbers in them) to provide a different test using PDF apps that have editing capabilities. You can even use the annotation tools (such as text boxes) available in most PDF apps. Remember to save the edited file under a different file name, or you will lose the original.

The end-of-year test is best administered as a diagnostic or assessment test, which will tell you how well the student remembers and has mastered the mathematics content of the entire grade level.

Using cumulative reviews and the worksheet maker

The student books contain mixed review lessons which review concepts from earlier chapters. The curriculum also comes with additional cumulative review lessons, which are just like the mixed review lessons in the student books, with a mix of problems covering various topics. These are found in their own folder in the digital version, and in the Tests & Cumulative Reviews book in the print version.

The cumulative reviews are optional; use them as needed. They are named indicating which chapters of the main curriculum the problems in the review come from. For example, "Cumulative Review, Chapter 4" includes problems that cover topics from chapters 1-4.

Both the mixed and cumulative reviews allow you to spot areas that the student has not grasped well or has forgotten. When you find such a topic or concept, you have several options:

1. Check if the worksheet maker lets you make worksheets for that topic.
2. Check for any online games and resources in the Introduction part of the particular chapter in which this topic or concept was taught.
3. If you have the digital version, you could reprint the lesson from the student worktext, and have the student restudy that.
4. Perhaps you only assigned 1/2 or 2/3 of the exercise sets in the student book at first, and can now use the remaining exercises.
5. Check if our online practice area at https://www.mathmammoth.com/practice/ has something for that topic.
6. Khan Academy has free online exercises, articles, and videos for most any math topic imaginable.

Concerning challenging word problems and puzzles

While this is not absolutely necessary, I heartily recommend supplementing Math Mammoth with challenging word problems and puzzles. You could do that once a month, for example, or more often if the student enjoys it.

The goal of challenging story problems and puzzles is to **develop the student's logical and abstract thinking and mental discipline**. I recommend starting these in fourth grade, at the latest. Then, students are able to read the problems on their own and have developed mathematical knowledge in many different areas. Of course I am not discouraging students from doing such in earlier grades, either.

Math Mammoth curriculum contains lots of word problems, and they are usually multi-step problems. Several of the lessons utilize a bar model for solving problems. Even so, the problems I have created are usually tied to a specific concept or concepts. I feel students can benefit from solving problems and puzzles that require them to think "out of the box" or are just different from the ones I have written.

I recommend you use the free Math Stars problem-solving newsletters as one of the main resources for puzzles and challenging problems:

Math Stars Problem Solving Newsletter (grades 1-8)
https://www.homeschoolmath.net/teaching/math-stars.php

I have also compiled a list of other resources for problem solving practice, which you can access at this link:

https://l.mathmammoth.com/challengingproblems

Another idea: you can find puzzles online by searching for "brain puzzles for kids," "logic puzzles for kids" or "brain teasers for kids."

Frequently asked questions and contacting us

If you have more questions, please first check the FAQ at https://www.mathmammoth.com/faq-lightblue

If the FAQ does not cover your question, you can then contact us using the contact form at the Math Mammoth.com website.

Chapter 1: Addition and Subtraction
Introduction

This first chapter of *Math Mammoth Grade 3* focuses on mental math, word problems, and patterns.

The beginning lessons give a review of basic addition and subtraction facts, plus a review of some mental math strategies from second grade, so that even students who perhaps did not study mental math in earlier grades can now catch up. The rest of the lessons have to do with third grade topics (word problems, patterns).

Students practice writing an equation with an unknown for two-step word problems. This is a challenging topic that will be practiced throughout several chapters. In this chapter, the problems include only additions and subtractions. Later in third grade, the problems will also include multiplication and division. Students continue with this topic in fourth grade when they work on multi-step word problems in the same manner, and their work here is foundational to writing equations to solve problems and to model situations with mathematics in all grade levels, including in algebra.

The lessons on the concept of difference and on the connection between addition and subtraction have to do with algebraic thinking, and are also intended to help students with writing equations for the word problems.

Please see the user guide in the beginning of the worktext or at **https://www.mathmammoth.com/userguides/** for more guidance on using and pacing the curriculum.

Keep in mind the free videos that match the curriculum at **https://www.mathmammoth.com/videos/**.

Good Mathematical Practices

- Sometimes an elementary math problem is better solved with mental math, and sometimes with paper and pencil calculations. This chapter focuses on mental math, enabling students to use it as an efficient tool in many future math problems.
- One focus of this chapter is word problems and writing an equation with an unknown for them. This can be challenging to students, but it is also a wonderful opportunity for them to learn to persevere in solving problems — an essential skill in everyday life. Mention to them that mistakes are not bad because that is when you truly learn. Explain to them that your brain literally grows when you think about and analyze a mistake you made. In the same vein, make sure you as the teacher or parent do not put mistakes down in any manner, but treat them as something valuable.
- The lesson *Patterns* gives students opportunities to look for structure and patterns, which are foundational activities in mathematics.

Pacing Suggestion for Chapter 1

This table does not include the chapter test as it is found in a different book (or file).
Please add one day to the pacing for the test if you use it.

The Lessons in Chapter 1	page	span	suggested pacing	your pacing
Addition Facts Review (optional)	16	*3 pages*	1 day	
Mental Addition	19	*2 pages*	1 day	
Review: Subtraction Facts (optional)	21	*2 pages*	1 day	
Subtraction Strategies, Part 1	23	*2 pages*	1 day	
Subtraction Strategies, Part 2	25	*2 pages*	1 day	
The Concept of Difference	27	*3 pages*	1 day	
Mental Math with Three-Digit Numbers	30	*2 pages*	1 day	

A Letter for the Unknown 1	32	*2 pages*	1 day
The Connection with Addition and Subtraction	34	*2 pages*	1 day
A Letter for the Unknown 2	36	*2 pages*	1 day
Patterns	38	*2 pages*	1 day
Review Chapter 1	40	*2 pages*	1 day
Chapter 1 Test (optional)			
TOTALS		*21 pages*	10 days
with optional content		*(26 pages)*	(12 days)

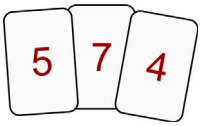
Games and Activities

The Lowest Sum

You need: Number cards with numbers from 2 to 9, preferably at least four copies of each card. A standard deck of cards from which all the aces, face cards, and jokers have been removed is one possibility.

Game play: Shuffle the cards. In each round, deal three cards to each player. Each player will then form one TWO-digit number and one SINGLE-digit number using the three cards, and will calculate the sum of those mentally. The goal is to make this sum to be as small as possible.

For example, let's say you get the cards 5, 7, and 4. You could make these sums: 57 + 4, 45 + 7, 47 + 5, and a few others. But choose the smallest sum!



Each player will say their sum aloud. The person with the smallest sum will win all the cards (from all players) used in that round, and puts them into their personal pile.

Continue with the next round by dealing another three cards to each player.

Once you cannot deal three cards to each player, the game is over. The person with MOST cards in their personal pile is the winner.

Variations

1. On each round, each player is allowed to discard ONE of their cards and to draw a new one to replace it, from the deck.
2. Players try to make the largest sum possible, instead of the smallest.
3. Use four cards, and make two 2-digit numbers.
4. Use four cards, and make one 3-digit and one single-digit number.
5. Use five cards, and make one 3-digit and one 2-digit number.
6. Write down each sum of each round, and add those together, to get a final score for each player. The player with the smallest final sum wins.

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Addition Facts Review

9-trick

Nine wants to be 10, so it takes "one" from the other number!

The other number becomes one less.

7 + 9
↓ ↓
6 + 10

= 16

8-trick

Eight wants to be 10, so it takes "two" from the other number!

The other number becomes two less.

5 + 8
↓ ↓
3 + 10

= 13

1. Point to the problems and think of the answer. Practice several times! If you don't have these memorized, use the tricks above.

a.	b.	c.	d.
6 + 9	9 + 4	5 + 8	8 + 4
8 + 9	9 + 6	3 + 8	8 + 7
5 + 9	9 + 2	6 + 8	8 + 9
3 + 9	9 + 9	8 + 8	8 + 5

The doubles

Cover the answers, and practice memorizing the answers.

2 + 2 = **4**	6 + 6 = **12**
3 + 3 = **6**	7 + 7 = **14**
4 + 4 = **8**	8 + 8 = **16**
5 + 5 = **10**	9 + 9 = **18**

Doubles plus 1

These facts are just one more than a doubles fact! Can you quickly tell each answer?

Point to the problems, and practice.

2 + 3	6 + 7
3 + 4	7 + 8
4 + 5	8 + 9
5 + 6	9 + 10

You can use addition facts to solve other addition problems. **Compare:**	
5 + 6 = 11 35 + 6 = 41 5 + 6 is one more than 10, so, 35 + 6 is one more than the *next* ten (40)	8 + 5 = 13 78 + 5 = 83 8 + 5 is three more than 10, so, 78 + 5 is three more than the *next* ten (80)

2. Add.

a.	**b.**	**c.**
8 + 7 = _____	9 + 9 = _____	4 + 8 = _____
18 + 7 = _____	29 + 9 = _____	34 + 8 = _____
58 + 7 = _____	69 + 9 = _____	64 + 8 = _____

3. Add. Think of the easier problem (with single digits) in your mind.

a. 26 + 7 = _____	**b.** 74 + 9 = _____	**c.** 68 + 8 = _____
d. 58 + 5 = _____	**e.** 24 + 8 = _____	**f.** 49 + 7 = _____

4. Draw a line to connect each problem to its answer.

29 + _____ = 36	**7**	86 + _____ = 96
66 + _____ = 76	**10**	46 + _____ = 56
48 + _____ = 56	**9**	57 + _____ = 66
50 + _____ = 56	**6**	38 + _____ = 46
87 + _____ = 96	**8**	89 + _____ = 96
70 + _____ = 76		39 + _____ = 46
68 + _____ = 76		77 + _____ = 86

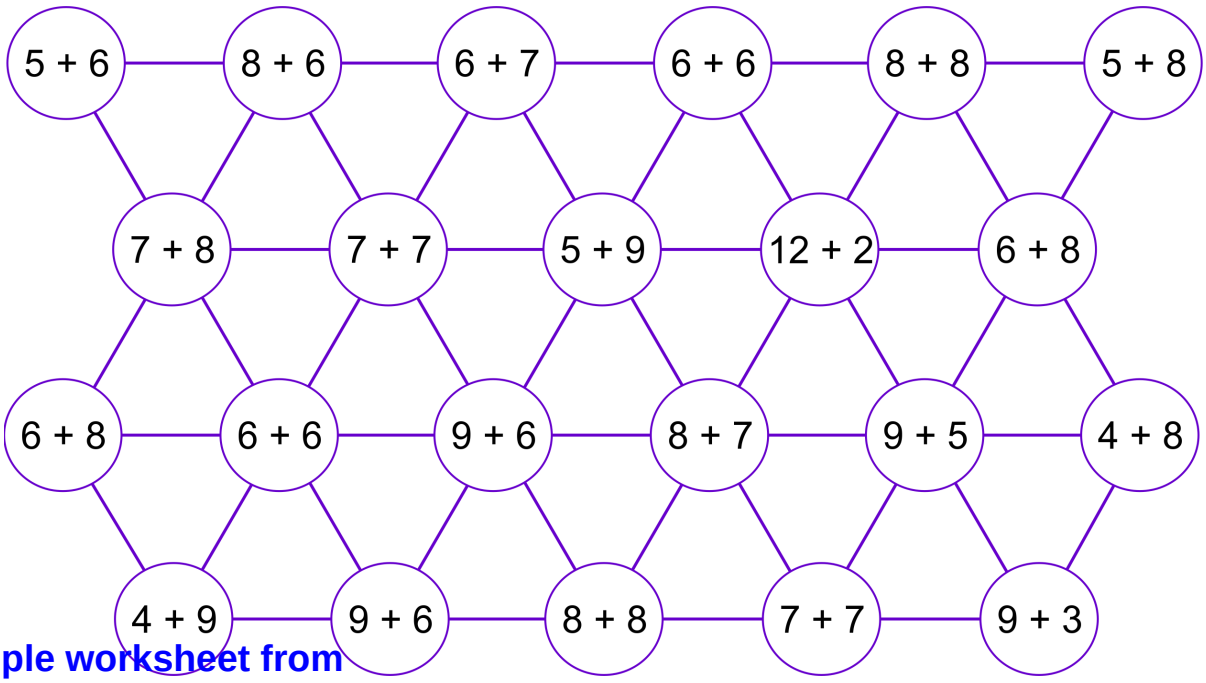
5. Add the same number each time (repeatedly).

a. Add 20.	**b.** Add 40.	**c.** Add 15.	**d.** Add 25.
20	*40*	*15*	*25*
40	*80*	*30*	*50*

6. Play the **Lowest Sum** game. (See the chapter introduction.)

7. Play the **11-Out Go Fish** game. (See the chapter introduction.) Play it also as 12-Out Go Fish and 13-Out Go Fish.

8. Island hopping puzzle! Find a path from the top to the bottom that connects islands with the same answer. *This puzzle is adapted from* ***https://www.earlyfamilymath.org*** *and published here with permission.*



Mental Addition

Break numbers into parts to make adding easier:

30 + 28
/ \
30 + 20 + 8 = _____

12 + 60
/ \
2 + 10 + 60 = _____

1. Break one of the numbers into its tens and ones. Then add using mental math.

a. 50 + 14 = *50 + 10 + 4 = 64*	**b.** 80 + 11	**c.** 50 + 39
d. 35 + 60	**e.** 10 + 5 + 21	**f.** 29 + 40 + 30

2. Add the tens and the ones separately. Look at the example.

a. 36 + 22 = **30 + 20** + **6 + 2** =	**b.** 72 + 18 = **70 + 10** + **2 + 8** =	**c.** 54 + 37
d. 24 + 55	**e.** 36 + 36	**f.** 42 + 68

3. Play the **5-Card Draw to the Target** game. (See the chapter introduction.)

4. Find the easiest order to add! You can break numbers into parts and add part-by-part.

a. 20 + 40 + 2 + 7
= _____

b. 30 + 50 + 8 + 2
= _____

c. 40 + 60 + 4 + 3
= _____

d. 10 + 12 + 7 + 3
= _____

e. 52 + 4 + 30 + 3
= _____

f. 78 + 10 + 2 + 20
= _____

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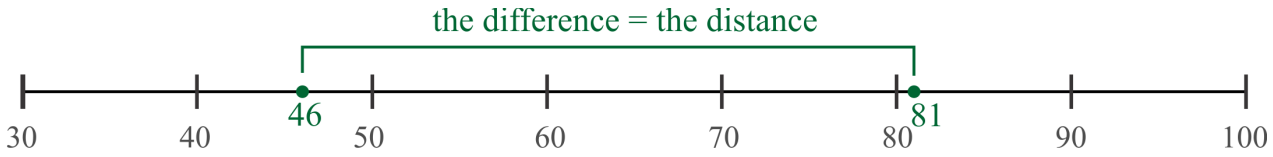
The Concept of Difference

The ***difference*** between two numbers means how far apart they are from each other.

Example 1. What is the difference between 81 and 46?



The answer to the missing-number addition 46 + _____ = 81 will tell us the difference between 46 and 81.

From the number line, we can see that from 46 to 50 is 4 units, from 50 to 80 is 30 units, and from 80 to 81 is one unit. In total, the distance is 35 units.

This is also the answer to the **subtraction** 81 – 46.

The difference between two numbers can be found by subtraction.

Example 2. 558 − 556 = ??

The answer to any subtraction problem is the difference between the numbers.

How far apart are 556 and 558 from each other? Only two units apart.

In other words, think how much to add to 556 to get to 558: 556 + ____ = 558 .

1. Find the **differences**. Think how far apart the numbers are.

a. 78 − 75 = _____	**b.** 112 − 108 = _____	**c.** 505 − 499 = _____
61 − 58 = _____	692 − 688 = _____	1000 − 994 = _____

2. Below each addition, write a matching subtraction problem so that the numbers in the boxes are the same.

a. 199 + ☐ = 214	**b.** 67 + ☐ = 100
_____ – _____ = ☐	_____ – _____ = ☐

Even if the two numbers are not close to each other, you can still "add backwards" to find their difference. Simply start at the smaller number, and **add up** until you get to the bigger number.

Example 3. 84 – 37 = ?

We start at 37, and add until we reach 84. See the sums on the right.

We add 3, 40, and 4, or a total of 47. So, 84 – 37 = 47.

37 + 3 = 40

40 + 40 = 80

80 + 4 = 84

3. Add up to find the difference between two numbers.

a. 92 – 35 = _____

35 + ____ = 40

40 + _____ = 90

90 + ____ = 92

b. 805 – 299 = _____

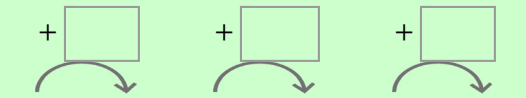
299 + ____ = 300

300 + _____ = 800

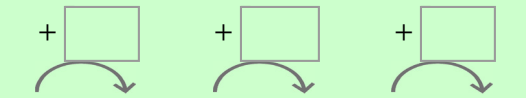
800 + ____ = 805

4. Add up to find the differences, or use some other strategy.

a. 65 – 26 = _____



b. 83 – 35 = _____



c.

56 – 28 = _____

55 – 24 = _____

d.

72 – 18 = _____

82 – 46 = _____

e.

54 – 37 = _____

91 – 57 =_____

f.

74 – 55 = _____

63 – 34 =_____

5. Solve.

a. The temperature outside is 25 degrees Fahrenheit, and inside it is 74 degrees. What is the difference in temperature?

b. Ellie has $91. She wants to buy a printer that costs $129. How much more does she need to buy it?

6. What numbers do the animals represent in the problems? Write the answers in the table below, and then use the key to uncover the message.

Key:	0	1	2	3	4	5	6	7	8	9	10
	O	E	I	U	D	H	N	P	R	S	T

362 –  = 358

389 –  = 384

203 –  = 193

120 –  = 113

361 –  = 353

541 –  = 539

700 –  = 699

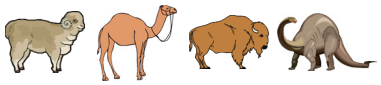
501 –  = 501

603 –  = 594

642 –  = 639

203 –  = 197

How do you put a  into a refrigerator?

Animal 

Number

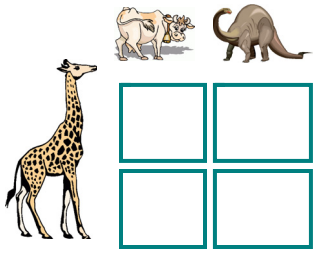
Letter

,

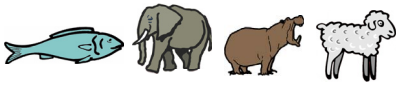
Animal 

Number

Letter



,

Animal 

Number

Letter

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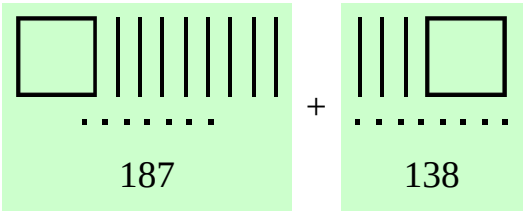
Regrouping in Addition

Remember regrouping?

Ten ones (the dots) make a new ten. Ten tens (the sticks) make a new hundred. *Circle them!*

What is the total now?



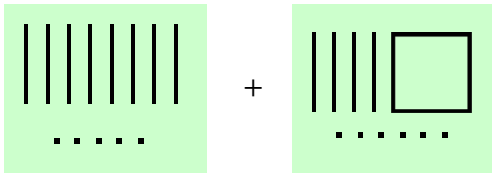
hundreds	tens	ones
	1	1
	1	8	7
+	1	3	8
	3	2	5

In the ones' column, we add: 7 + 8 = 15. We *regroup* these 15 ones as 1 ten 5 ones. We move the one ten to the tens column by writing "1" there, above the other numbers.

The tens: 1 + 8 + 3 = 12. Ten of these 12 tens make a hundred. In other words, we regroup the 12 tens as 1 hundred 2 tens. We move the hundred to the hundreds' column by writing "1" there.

1. Write the numbers in the grid, and add. Regroup. You can circle 10 ten-sticks AND 10 ones in the picture to help you. Or, you can do these exercises using base-ten blocks.

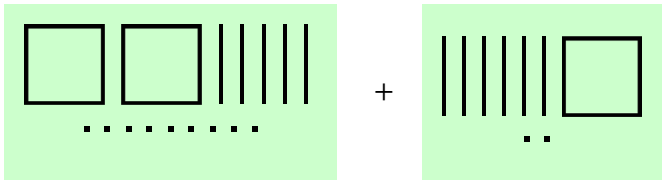
a.



85 + 146

+

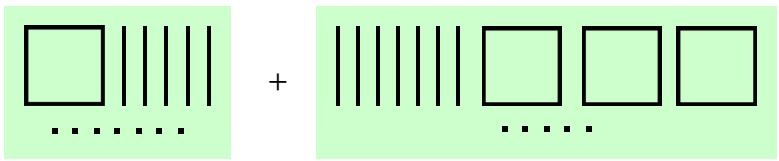
b.



259 + 162

+

c.



157 + 375

+

2. Add.

a.
$$\begin{array}{r} 677 \\ +\ 56 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 599 \\ +\ 43 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 446 \\ +\ 276 \\ \hline \end{array}$$

d.
$$\begin{array}{r} 387 \\ +\ 458 \\ \hline \end{array}$$

$$\begin{array}{r} {\scriptstyle 2\ 2\ \ } \\ 131 \\ 255 \\ 86 \\ +\ 29 \\ \hline 501 \end{array}$$

When there are lots of numbers to add, think which of them add up to easy totals.

In the ones column, we have **1** + **5** + **6** + **9**. Notice, 1 + 9 makes 10 and 5 + 6 makes 11. So, the total is 10 + 11 = 21. That is quicker than adding the numbers one after another.

In the tens column, we have 2 + 3 + 5 + 8 + 2. Which of those add to an easy total?

3. Add. Think in which order you add the numbers in the columns.

a.
$$\begin{array}{r} 34 \\ 212 \\ 258 \\ +\ 56 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 184 \\ 527 \\ 159 \\ +\ 43 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 280 \\ 149 \\ 154 \\ +\ 276 \\ \hline \end{array}$$

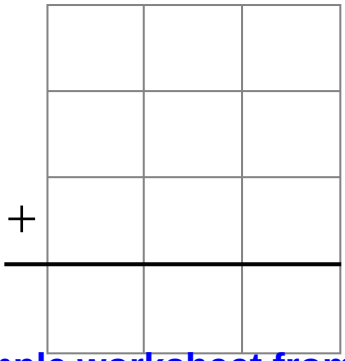
d.
$$\begin{array}{r} 56 \\ 229 \\ 9 \\ +\ 454 \\ \hline \end{array}$$

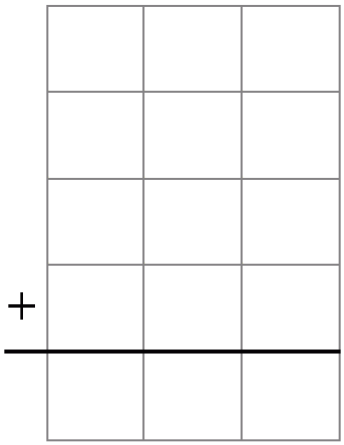
4. Write the numbers in the grids and add.

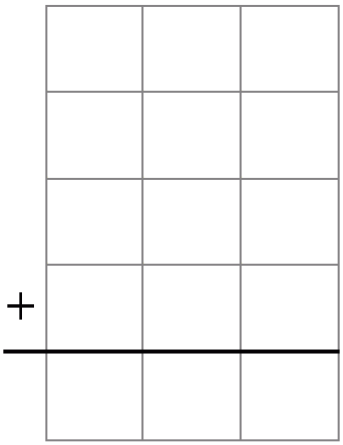
a. 524 + 68 + 180

b. 56 + 309 + 6 + 162

c. 435 + 79 + 107 + 8



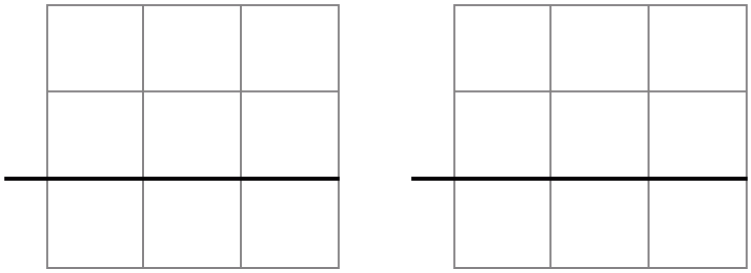




5. Solve. Write an equation or equations for each, to show your calculations.

a. One computer costs $365 and another costs $78 more than that. How much do *two* of the more expensive computers cost?

Equation(s): _____



b. Candles are packaged in boxes of 300. Mary has three boxes. She took 12 candles out of one of the boxes. How many candles are there in boxes now?

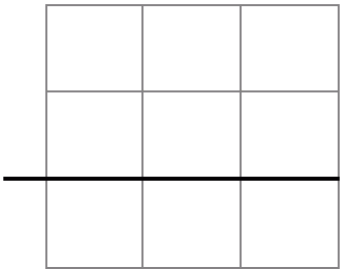
Equation(s): _____

_____

c. The Hudson family is driving to a zoo that is 285 km away. They have driven 125 km so far. How far do they still have to drive?

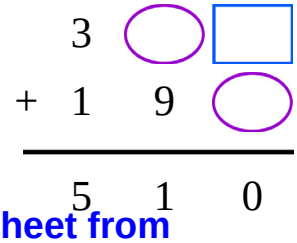
Equation(s): _____

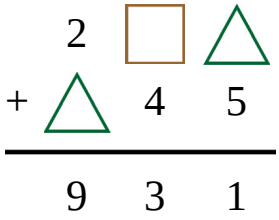
_____



Puzzle Corner

Find single-digit numbers in place of the shapes so that the additions are true. Note that the same symbol means the same number in both places.





How to Check Addition Problems

Here are two ways that you can use to check an addition problem in a column.

1. Add the numbers in each column in a different order.

Let's look at the ones column for an example.

First, you might add 1 + 2 + 1 = **4**, 7 + 8 = **15**,
and lastly add those two sums: 4 + 15 = 19.

When checking, you could add 8 + 2 = **10**, 7 + 1 + 1 = **9**,
and 10 + 9 = 19.

```
  1 3 1
    5 2
  3 2 1
  2 4 7
+   3 8
-------
```

2. Use rounded numbers to estimate the answer.

To estimate this sum, we can round each number to the nearest ten, and add mentally:

130 + 50 + 320 + 250 + 40 = 790

The answer on the right is 679, which is more than 100 off from this!

When the answer you get is very far from the estimated answer, something is wrong. So, it's time to check both the estimation and the addition.

```
    1 1
  1 3 1
    5 2
  3 2 1
  2 4 7
+   3 8
-------
  6 7 9
```

1. Find where the error is in the example above, and correct it.

2. Add. Check your work by adding in a different order.

a.
```
    5 1
  2 2 6
  3 2 2
  3 9 7
+   4 9
-------
```

b.
```
  1 5 6
  1 3 7
  2 8 3
    2 9
+ 3 3 3
-------
```

c.
```
  3 8 5
    4 7
  1 1 7
  2 0 4
+   7 8
-------
```

d.
```
  3 4 6
    3 6
  1 4 9
    3 9
+ 3 5 5
-------
```

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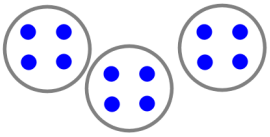
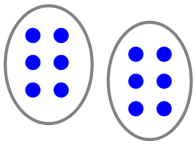
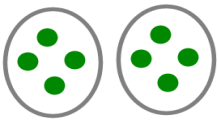
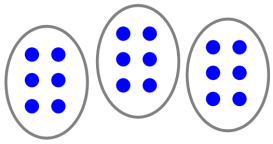
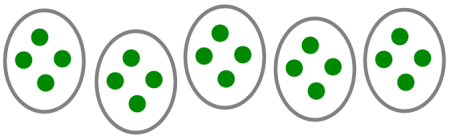
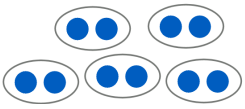
Many Times the Same Group

	3 × 4 "three times four" 3 groups of 4
	2 × 6 2 times a group of 6 We *multiply* 2 times 6.

The symbol **×** is read as "times" and indicates **multiplication**. For example, 3 × 5 is read as "three times five", and it means you have three groups of five.

1. How many groups? What size groups? Write the multiplication.

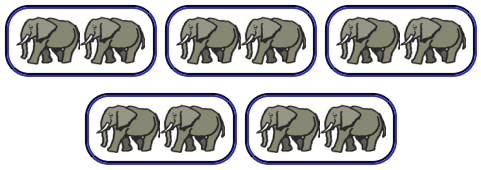
 **a.** 2 × 4 how many groups / how many in each group	 **b.** ____ × ____ how many groups / how many in each group	 **c.** ____ × ____ how many groups / how many in each group
 **d.** _____ × _____	 **e.** _____ × _____	 **f.** 1 × _____

2. Now it is your turn to draw! Remember, the first number tells you how many groups.

a. 2 × 7	**b.** 4 × 2	**c.** 4 × 3
d. 6 × 1	**e.** 1 × 8	**f.** 2 × 2

Now we have **five** groups of **two** elephants each. In total, there are **10 elephants**.

how many groups		how many in each group		how many in total
5	×	2	=	10

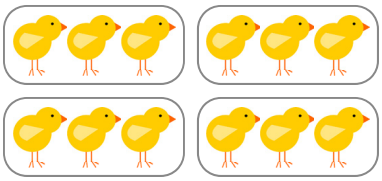


We can solve multiplications by adding repeatedly.

To solve, 5 × 2, we can add 2, five times: 5 × 2 = 2 + 2 + 2 + 2 + 2 = 10

3. Fill in the missing parts.

a.

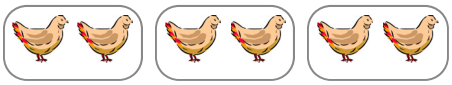


_____ + _____ + _____ + _____

____ groups of ____ chicks in each.

____ × ____ chicks = ____ chicks

b.



_____ + _____ + _____

____ groups of ____ hens in each.

____ × ____ hens = ____ hens

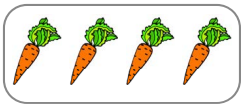
c.

_____ + _____ + _____

____ groups of ***1*** dog in each.

____ × ____ dog = ____ dogs

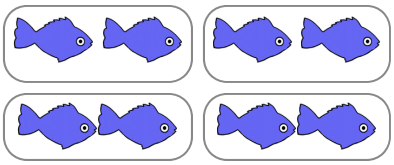
d.



1 group of ____ carrots in it.

____ × ____ carrots = ____ carrots

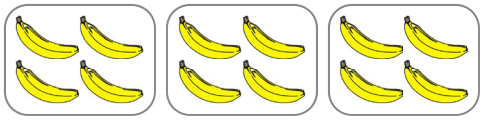
e.



_____ + _____ + _____ + _____

_____ × _____ = _____

f.



_____ + _____ + _____

_____ × _____ = _____

4. Now it is your turn to draw. Draw circles or sticks. Write the multiplication sentence.

a. Draw 3 groups of seven sticks. _____ × _____ = _____	**b.** Draw 2 groups of eight circles. _____ × _____ = _____
c. Draw 4 groups of one circle. _____ × _____ = _____	**d.** Draw 5 groups of two sticks. _____ × _____ = _____

5. Draw groups to solve the multiplications.

a. 5 × 4 = _____	**b.** 4 × 6 = _____

6. These questions have to do with equal-size groups. Write a multiplication for each. Drawing can help.

a. How many legs do five cows have? _____ × _____ = _____	**b.** How many wheels do six bicycles have? _____ × _____ = _____
c. How many legs do eight chickens have? _____ × _____ = _____	**d.** One bunch of grapes has 11 grapes. How many grapes are in three such bunches? _____ × _____ = _____

Multiplication as an Array

An **array** is an orderly arrangement of things in rows and columns.
When things are neatly aligned in an array, we can think of the *rows as groups*.

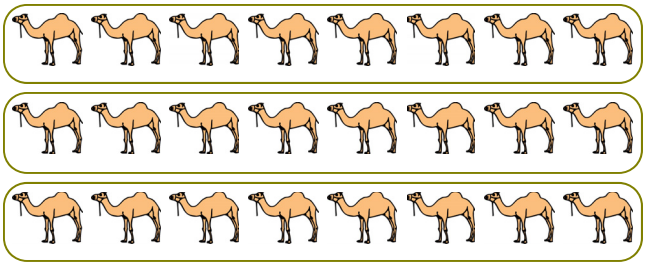
Since each group has the same amount of things, we can write a multiplication.

3 rows, 8 camels in each row.

$8 + 8 + 8$

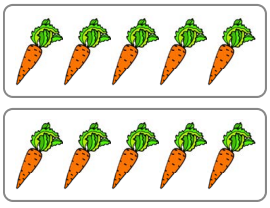
$3 \times 8 = 24$

That's a lot of camels!



1. Do the **Multiplication Arrays** activity. (Optional; see the chapter introduction.)

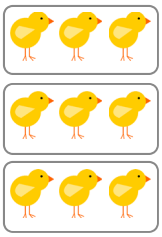
2. Fill in the missing numbers.



a. _____ rows, _____ carrots in each row.

_____ + _____

_____ × _____ = _____ carrots



b. _____ rows, _____ chicks in each row.

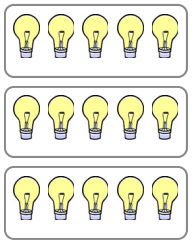
_____ + _____ + _____

_____ ×_____ = _____ chicks

c. _____ rows, _____ bear in each row.

_____ + _____ + _____

_____ × _____ = _____ bears



d. _____ rows, _____ bulbs in each row.

_____ + _____+ _____

_____ × _____ = _____ bulbs

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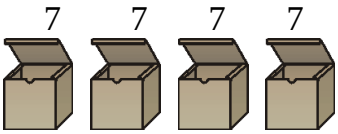
Understanding Word Problems, Part 1

Example 1.



There are seven rocks in each box.
That is a total of 4 × 7 = 28 rocks.

Example 2.

Each shirt costs $8. All totaled, they cost 3 × $8 = $24.

Whenever repeated addition (adding the same number many times) would solve a problem, you can use multiplication.

In such problems, EACH thing or person has the same amount, or EACH thing costs the same, and so on. Watch for the word "each" — it often means you use multiplication.

1. Solve. Write a number sentence for each problem. Not every question uses multiplication, but several do. Write +, −, or × in the box. You can draw pictures to help.

a. Four children are playing tennis together. They each brought six balls. How many tennis balls do they have altogether?

_____ ☐ _____ = _____

b. Amy owns 31 tennis balls. Today, she can only find 26 of them. How many are missing?

_____ ☐ _____ = _____

c. A sandwich costs $9, and you have $24. How much do you have left if you buy it?

_____ ☐ _____ = _____

d. A certain town has three post offices. Each post office has five workers. How many workers do the post offices have altogether?

_____ ☐ _____ = _____

e. A sandwich costs $9 and a salad $7. What is the total if you buy both?

_____ ☐ _____ = _____

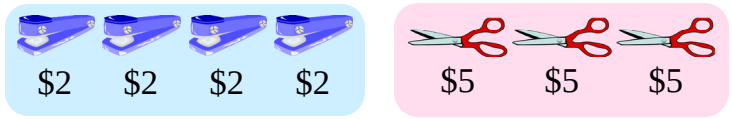
f. Five children did 10 jumping jacks each. How many jumping jacks did they do in total?

_____ ☐ _____ = _____

Example 3. What is the total cost?

We can do two separate multiplications and add the results.

Note that *both* multiplications are done *first*, and adding last.

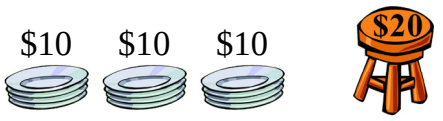


$4 \times \$2$ + $3 \times \$5$

$\$8$ + $\$15$ = $\$23$

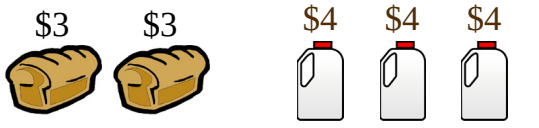
2. Write a number sentence for the total cost.

a.



____ × ____ + ____ = _____

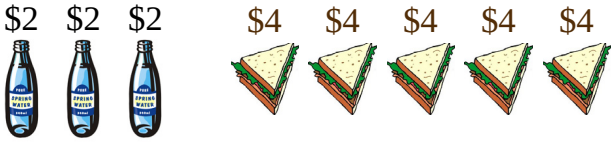
b.



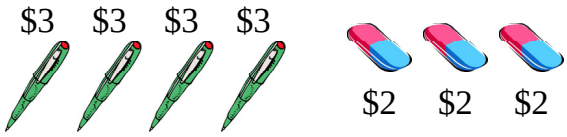
____ × ____ + ____ × ____ = _____

c.

d.



e.



3. Solve. Write down the calculations you do. Don't just write the answer.

a. Elijah bought five notebooks for $2 each and a package of pencils for $5. What was the total cost?

_____

_____

b. Mother bought four chairs for $10 each and two tables for $20 each. What was the total bill?

_____

_____

4. Solve. Write down the calculations you do. Don't just write the answer.

a. Bill bought coffee for $2, a bottle of water for $2, and four cheese sandwiches for $3 each. What was the total bill?

_____

_____

b. If you added two more columns to this array, what multiplication would it illustrate?

c. Mrs. Anderson has two plastic flower pots and two ceramic ones. In each pot there are five flowers. How many flowers does she have in these pots?

_____

_____

d. Cynthia drew four rows of little hearts, with four hearts in each row. Then she erased four hearts from the middle of her array. How many hearts does her drawing have now?

e. The Jones family ordered three veggie pizzas and one chicken pizza. Each pizza was sliced into four pieces. How many slices of pizza were there?

f. A large bottle of honey weighs 2 lb and a small one weighs 1 lb. How much do ten large bottles and two small ones weigh together?

Puzzle Corner Which operations will make the number sentences true?

2 ☐ 4 ☐ 1 = 9 5 ☐ 5 ☐ 4 = 25 5 ☐ 2 ☐ 5 ☐ 5 = 20

Zero and One in Multiplication

Multiplication means you have so many equal-sized groups. Let's see how that idea works when we either have zero groups, or each group has zero things.

Four groups, each has zero giraffes.

4 × 0 = 0 + 0 + 0 + 0 = 0

How many groups | how many in each group | (empty groups)

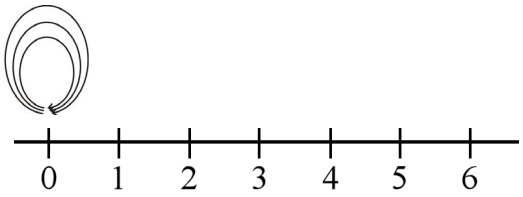
Zero groups (or NO groups) of four giraffes.

0 × 4 = 0

How many groups | How many in each group | (nothing)

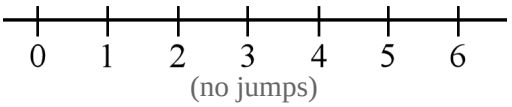
Take three jumps of zero steps.
Where do you end up?

$3 \times 0 = 0$



Take ZERO or no jumps of three steps:

$0 \times 3 = 0$



(no jumps)

Multiplying by **one** is easy!

Four groups, each has one giraffe.

$4 \times 1 = 1 + 1 + 1 + 1 =$ _____

One group has four giraffes.

$1 \times 4 =$ _____

1. Let's see if you understood! Multiply.

a. $0 \times 5 =$ _____	**b.** $1 \times 1 =$ _____	**c.** $0 \times 10 =$ _____	**d.** $6 \times 1 =$ _____
$0 \times 0 =$ _____	$1 \times 9 =$ _____	$1 \times 10 =$ _____	$6 \times 0 =$ _____

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Multiplication Table of 2

1. Skip-count by twos. Practice this pattern until you can say it from memory. Also practice it backwards (counting up and down). Notice these are *the even numbers*!

0, 2, ____, ____, ____, ____, ____, ____, ____, ____, ____, ____, 24

2. Fill in the missing numbers. Then cover what you wrote, and choose problems in random order and practice. You may first practice only the first half of the table (from 1 × 2 till 6 × 2, and the rest at a later time, such as the next day.

a.

1 × 2 = ____	7 × 2 = ____
2 × 2 = ____	8 × 2 = ____
3 × 2 = ____	9 × 2 = ____
4 × 2 = ____	10 × 2 = ____
5 × 2 = ____	11 × 2 = ____
6 × 2 = ____	12 × 2 = ____

b.

____ × 2 = 2	____ × 2 = 14
____ × 2 = 4	____ × 2 = 16
____ × 2 = 6	____ × 2 = 18
____ × 2 = 8	____ × 2 = 20
____ × 2 = 10	____ × 2 = 22
____ × 2 = 12	____ × 2 = 24

3. Don't write the answers down. Use these problems for random drill practice.

6 × 2	7 × 2	2 × 3	2 × 7	2 × 8
9 × 2	2 × 2	2 × 11	2 × 4	3 × 2
4 × 2	8 × 2	2 × 9	2 × 6	2 × 5
2 × 1	12 × 2	2 × 12	8 × 2	10 × 2

4. Don't write the answers down. Use these problems for random drill practice.

☐ × 2 = 14	☐ × 2 = 12	☐ × 2 = 6	☐ × 2 = 12	☐ × 2 = 22
☐ × 2 = 18	☐ × 2 = 16	☐ × 2 = 18	☐ × 2 = 8	☐ × 2 = 10
☐ × 2 = 8	☐ × 2 = 24	☐ × 2 = 14	☐ × 2 = 20	☐ × 2 = 24
☐ × 2 = 16	☐ × 2 = 2	☐ × 2 = 22	☐ × 2 = 4	☐ × 2 = 6

5. Multiply.

a. 2 × 12 = _____ 7 × 1 = _____ 1 × 8 = _____	**b.** 8 × 2 = _____ 2 × 5 = _____ 6 × 2 = _____	**c.** 9 × 2 = _____ 3 × 0 = _____ 1 × 2 = _____	**d.** 2 × 11 = _____ 10 × 2 = _____ 0 × 7 = _____

6. Multiplying by two is the same as **doubling**. Write an addition sentence and multiply by two to double the number in each problem.

a. Double 8 8 + 8 = _____ 2 × 8 = _____	**b.** Double 13 ____ + ____ = _____ 2 × ____ = _____	**c.** Double 15 ____ + ____ = _____ ____ × ____ = _____
d. Double 25 ____ + ____ = _____ ____ × ____ = _____	**e.** Double 32 ____ + ____ = _____ ____ × ____ = _____	**f.** Double 45 ____ + ____ = _____ ____ × ____ = _____

7. Continue the table of 2, and notice the pattern: the answers are **even numbers**.

2 × 12 = _____	2 × 15 = _____	2 × 18 = _____	2 × 21 = _____
2 × 13 = _____	2 × 16 = _____	2 × 19 = _____	2 × 22 = _____
2 × 14 = _____	2 × 17 = _____	2 × 20 = _____	2 × 23 = _____

8. Underline or circle whether the number is even or odd. If the number is even, write it as "two times the number that was doubled." If the number is odd, do nothing.

a. **14** is even/odd 2 × _____	**b.** **7** is even/odd 2 × _____	**c.** **18** is even/odd 2 × _____
d. **21** is even/odd 2 × _____	**e.** **30** is even/odd 2 × _____	**f.** **34** is even/odd 2 × _____

9. How many feet do the animals have? Write a number sentence for each problem.

a. seven chickens _____ × _____ = _____	**b.** three kittens _____ × _____ = _____
c. five chickens and one cow _____ × _____ + _____ = _____	**d.** two dogs and one goose _____ × _____ + _____ = _____
e. three sheep and five ducks _____ × _____ + _____ × _____ = _____	

10. Write an animal feet problem to match this number sentence:

$8 \times 2 + 2 \times 4 = 24$

(You can also make animal feet problems for your friend/classmate!)

11. Solve. Write a number sentence for each problem.

a. There were two trees with seven birds in each tree. Three of them flew away. How many birds stayed in the trees?

_____ × _____ – _____ = _____

b. John earns two dollars every time he helps with the yard work. He did yard work six times and saved all his money. Then he bought a book that cost $8. How much money did he have left?

Fred already had $11 in his piggy bank. Each week, for eight weeks, he saved $2 from the money he earned. Afterwards, he had just enough money to buy an expensive model airplane. How much did the airplane cost?

Puzzle Corner

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More Practice and Review

1. Review the tables of two, four, and five. Then check yourself with these problems.

a. 9 × 2 = _____ 7 × 4 = _____	**b.** 5 × 2 = _____ 3 × 4 = _____	**c.** 7 × 2 = _____ 8 × 5 = _____	**d.** 6 × 5 = _____ 12 × 4 = _____
e. 6 × 4 = _____ 11 × 2 = _____	**f.** 12 × 2 = _____ 5 × 6 = _____	**g.** 6 × 2 = _____ 4 × 11 = _____	**h.** 5 × 5 = _____ 1 × 4 = _____
i. 4 × 4 = _____ 5 × 11 = _____	**j.** 12 × 5 = _____ 9 × 4 = _____	**k.** 2 × 1 = _____ 5 × 9 = _____	**l.** 8 × 4 = _____ 7 × 5 = _____

2. Solve. Write an equation for each problem. You can draw pictures to help.

a. Mom bought two cartons of eggs. Each carton had a dozen eggs. Now she has used four eggs. How many eggs are left?

There are _____ eggs left.

b. Eleven shops in a shopping mall have three workers each, and two shops have nine workers each. How many workers are there all totaled?

There are _____ workers in total.

c. Anna arranged all her stuffed animals in groups of four. She had 20 animals. How many groups did she get?

_____ × _____ = _____

She got _____ groups.

d. Marie packed dolphin figurines in five boxes, four figurines in each box. Then she also packed three figurines in one box. How many dolphin figurines did she pack?

She packed _____ figurines.

3. Calculate in the correct order. Circle the operation to be done first in a "bubble"!

a. $3 + 7 \times 5$	**b.** $10 \times 6 - 10 \times 3$	**c.** $5 \times (5 - 4)$
d. $(4 + 2) \times 5$	**e.** $5 \times 4 + 12 \times 4$	**f.** $0 + 7 \times 2 - 4$

4. Fill in the skip-counting patterns.

a.			15		21	24			
b.		40			100		140		180
c.			40		32				16

5. Figure out the missing numbers in these multiplication charts.

×		**6**	
4			
5	10		
10			90

×	**4**	**2**		
		6		
	28			77
4			32	

△ is a certain number, and □ is another number. Solve what they are in each case. Guess and check!

Puzzle Corner

a. △ × □ = 15 □ + △ = 8	**b.** □ × △ = 24 □ − △ = 10	**c.** □ × △ = 24 □ + △ = 10

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Review Chapter 4

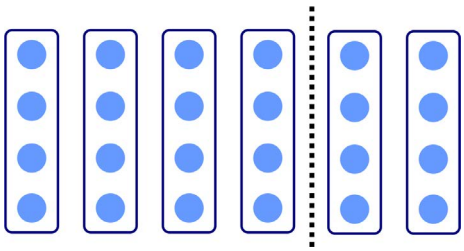
1. Fill in the multiplication chart — for the last time.

×	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

2. Multiply.

a. $4 \times 2 \times 2 =$ _____ **b.** $9 \times 2 \times 5 =$ _____ **c.** $3 \times 4 \times 7 =$ _____

3. What mathematical principle does the image illustrate?



4. What single multiplication is equal to $3 \times 7 + 2 \times 7$?

5. Fill in the missing numbers.

a. ____ × 4 = 28

36 = 4 × ____

____ × 12 = 84

b. 108 = 12 × ____

32 = ____ × 8

8 × ____ = 72

c. 36 = ____ × 3

____ × 3 = 21

____ × 12 = 60

6. Compare, writing < , > , or = in the box between the multiplications.

a. 9 × 8 ☐ 10 × 8

b. 9 × 5 ☐ 11 × 4

c. 9 × 8 ☐ 9 × 6

d. 9 × 8 ☐ 9 × 4

e. 4 × 4 ☐ 2 × 8

f. 10 × 11 ☐ 10 × 7

7. If you need to find 17 × 8, how can you use the fact that 17 × 4 = 68 to help you?

8. Solve. Write down the calculation(s) you do.

a. A teacher puts 20 students in groups so that each group has 4 students. How many groups will there be?

_____

_____

There will be _____ groups.

b. Josefina bought four books of stickers that cost $3 each and a notebook for $7. What was the total cost?

_____

_____

The total cost was _____.

c. Andy bought some packages of seeds for $24. Each package cost $2. How many packages did he buy?

_____

_____

He bought _____ packages.

d. A zoo has five  s, three  s, and twenty  s. How many feet do those animals have in total?

_____

_____

They have _____ feet in total.

9. Figure out the missing numbers in these multiplication charts.

×		**7**	
	10		30
9			54
		77	

×	**12**			
11		33		55
	48	12		
			63	35

10. Fill in the skip-counting patterns.

a.				72			48		32
b.			180		300		420		
c.			36			63		81	

(All mystery numbers are less than 100.)

a. You can find me both in the table of eleven and in the table of four.

I am _____.

b. I am more than 15. I am in the table of two, the table of three, and the table of four!

I am _____.

c. I am between 15 and 35. The number one more than me is in the table of five. The number one less than me is in the table of four.

I am _____.

d. I am both in the table of four and in the table of three, and if you add one to me, I am in the table of five.

I am _____.

e. I am in the table of 11. The number that is one more than me, is in the table of five, but not in the table of ten.

I am _____.

f. I am less than 22 but more than 9, and I am in the table of four. If you exchange my digits, I am in the table of three!

I am _____.

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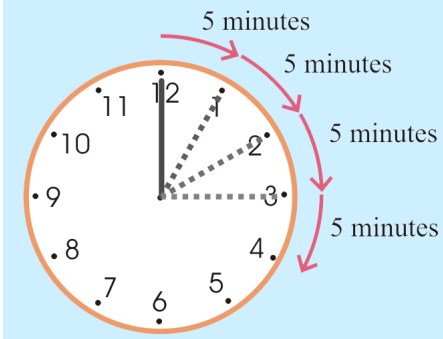
Review: Reading the Clock

When the MINUTE hand travels from one number to the next on the clock face, 5 minutes of time passes.

Each interval is five minutes. That is why you skip-count by fives, when figuring out the minutes.



1. Write the time the clock shows. Then continue writing the times at each five-minute interval. You can use your practice clock to help.

a.

8 : 15

8 : 20

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

b.

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

c.

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

____ : ____

d.

____ : ____

____ : ____

____ : ____

____ : ____

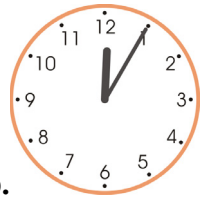
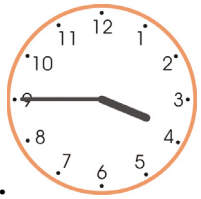
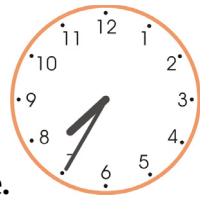
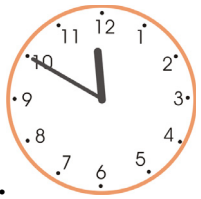
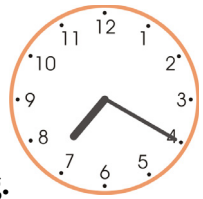
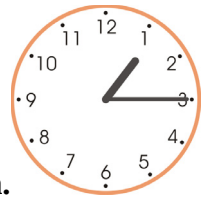
____ : ____

____ : ____

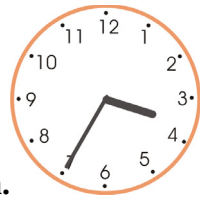
____ : ____

____ : ____

2. Write the time the clock shows.

a.  _____ : _____	**b.**  _____ : _____	**c.**  _____ : _____	**d.**  _____ : _____
e.  _____ : _____	**f.**  _____ : _____	**g.**  _____ : _____	**h.**  _____ : _____

3. Write the time the clock shows. Then write the time 10 minutes later than what the clock shows.

	a. 	**b.** 	**c.** 	**d.** 
The time now →	_____ : _____	_____ : _____	_____ : _____	_____ : _____
10 min. later →	_____ : _____	_____ : _____	_____ : _____	_____ : _____

4. Write the time 5 minutes *earlier* than what the clock shows.

	a. 	**b.** 	**c.** 	**d.** 
5 min. earlier →	_____ : _____	_____ : _____	_____ : _____	_____ : _____

Half and Quarter Hours

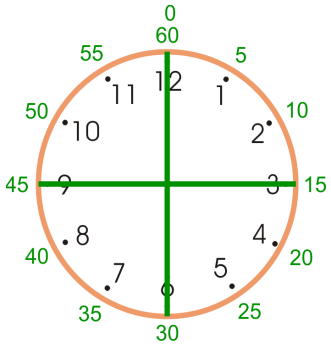
Imagine the clock face divided into four parts, or *quarters*. The word "quarter" means a fourth part.

Recall that one hour is 60 minutes. So then, each quarter of an hour is **15 minutes.**

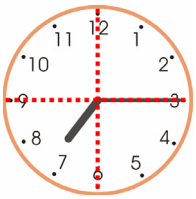
Since 15 minutes is a quarter of an hour, the time 6:15 can also be said as "**quarter after 6**" or "quarter past 6".

Similarly, the time 5:45 can also be said as "**quarter till 6**". It means a quarter of an hour, or 15 minutes, before 6 o'clock.

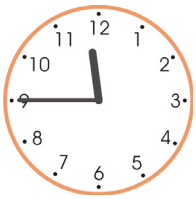
Remember also "half past." For example, 6:30 is "half past 6". It means a half-hour past or after 6 o'clock.



1 hour = 60 minutes
1/2 hour = 30 minutes
1/4 hour = 15 minutes



a quarter after 7



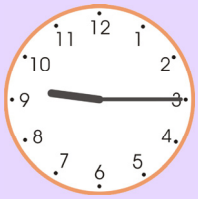
a quarter till 12

half past 10

1. Write the time in the standard way. Then match a clock with each given time.

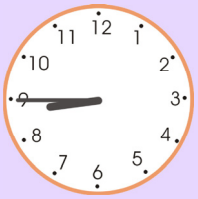
a. a quarter after 8

_____ : _____



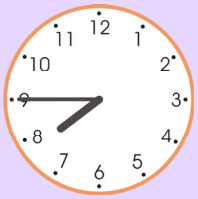
b. a quarter till 9

_____ : _____



c. a quarter after 9

_____ : _____



d. a quarter till 8

_____ : _____

2. Fill in the missing words or numbers.

a. 8:15	**b.** 4:45	**c.** _____ : _____
a quarter after _____	a quarter _____ ____	a quarter till 12

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Counting Coins

Let's review coins!	 a quarter _____¢	 a dime _____¢	 a nickel _____¢	 a penny _____¢
Count up, starting with the coin(s) with the largest value.	 100¢	110¢	120¢	125¢ 127¢ = $1.27

1. (Optional) Do the **Counting Money** activity from the chapter introduction.

2. Count the coins.

a. _____ ¢

b. _____ ¢

c. _____ ¢

d. _____ ¢

3. Fill in the patterns.

a. 4 quarters = _____ cents

5 quarters = _____ cents

6 quarters = _____ cents

7 quarters = _____ cents

b. 9 nickels = _____ cents

10 nickels = _____ cents

11 nickels = _____ cents

12 nickels = _____ cents

4. Write how many quarters, dimes, or nickels you need to make these amounts.

a. _____ quarters = 150 cents _____ quarters = 200 cents _____ quarters = 250 cents	**b.** _____ nickels = 45 cents _____ nickels = 65 cents _____ nickels = 85 cents

5. **a.** Dorothy says 130¢ = 3 quarters and 11 nickels, and Daniel says 130¢ = 5 quarters and one nickel. Who is correct?

b. Find another way to make 130¢ with quarters and nickels.

6. Use two different kinds of coins to make the asked amount. Find two ways to do so.

a. 90¢	**b. 105¢**
_____ quarters + _____ nickel(s) _____ quarters + _____ nickel(s)	_____ quarters + _____ dime(s) _____ quarters + _____ dime(s)

7. Draw **coins** to make the money amounts. Make them in two different ways.

a. 66¢

66¢

b. 127¢

127¢

c. 91¢

91¢

d. 158¢

158¢

 This is a **half-dollar**. It is worth 50 cents.	 A half-dollar is worth two quarters, because 50 = 25 + 25	 A half-dollar and a quarter is 75 cents.

8. How much money? Write the amount in cents.

a.  _____¢

b.  _____¢

c.  _____¢

d.  _____¢

e.  _____¢

f.  _____¢

9. Make these money-amounts. Use the half-dollar.

a. 93¢	**b.** 187¢	**c.** 135¢
d. 242¢	**e.** 314¢	**f.** 400¢

Dollars

Here you see bills with dollar amounts. Besides these, there is also a $100 bill.

$1

$2

$5

$10

$20

$50

Write the "$" symbol in front of dollar amounts.

First write the dollars, then a decimal point, and then the cents.

$5.30

$20.76

1. How much money? Write the amount.

a. $_____

b. $_____

c. $_____

d. $_____

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