Contents

Chapter 4: Regrouping in Addition

Chapter 5: Geometry and Fractions

Foreword

Math Mammoth Grade 2 comprises a complete math curriculum for the second grade mathematics studies. The curriculum meets and exceeds the Common Core standards.

The main areas of study for second grade are:

1. Understanding of the base-ten system within 1000. This includes place value with three-digit numbers, skip-counting in fives, tens, and multiples of hundreds, tens, and ones (within 1000) (chapters 6 and 8);
2. Develop fluency with addition and subtraction, including solving word problems, regrouping in addition, and regrouping in subtraction (chapters 1, 3, 4, and 8);
3. Using standard units of measure (chapter 7);
4. Describing and analyzing shapes (chapter 5).

Additional topics we study are time, money, introduction to multiplication, and bar graphs and picture graphs.

This book, 2-A, covers reading the clock (chapter 2), the basic addition and subtraction facts within 18 (chapter 3), regrouping in addition (chapter 4), and geometry (chapter 5). The rest of the topics are covered in the 2-B student worktext.

Some important points to keep in mind when using the curriculum:

- These two books (parts A and B) are like a "framework", but you still have a lot of liberty in planning your child's studies. While addition and subtraction topics are best studied in the order they are presented, feel free to go through the sections on shapes, measurement, clock, and money in any order you like.

  This is especially advisable if your child is either "stuck" or is perhaps getting bored with some topic. Sometimes the concept the child was stuck on can become clear after a break from the topic.

- Math Mammoth is mastery-based, which means it concentrates on a few major topics at a time, in order to study them in depth. However, you can still use it in a *spiral* manner, if you prefer. Simply have your child study in 2-3 chapters simultaneously. This type of flexible use of the curriculum enables you to truly individualize the instruction for your child.

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

- For review, the curriculum includes a worksheet maker (Internet access required), mixed review lessons, additional cumulative review lessons, and the word problems continually require usage of past concepts. Please see more information about review (and other topics) in the FAQ at **https://www.mathmammoth.com/faq-lightblue.php**

I heartily recommend that you view the full user guide for your grade level, available at **https://www.mathmammoth.com/userguides/**

Lastly, you can find free videos matched to the curriculum at **https://www.mathmammoth.com/videos/**

I wish you success in teaching math!

Maria Miller, the author

Chapter 1: Some Old, Some New
Introduction

This chapter contains both some review and some new topics, with the aim of giving children a good start in second grade math.

In the first few lessons, we review adding and subtracting two-digit numbers, and skip-counting using the 100-chart, from first grade. Next, the lesson *Fact Families* reviews the connection between addition and subtraction, and introduces a new strategy for missing subtrahend problems (such as ___ − 5 = 4). In these problems, the child can *add* to find the missing total. This actually teaches them algebraic thinking.

Then we go on to the "new", starting with ordinal numbers, which are probably familiar from everyday language. Even and odd numbers are presented in the context of equal sharing: if you can share that many objects evenly (equally), then the number is even. Use manipulatives here if desired.

Then we study doubling and halving. Don't skip the word problems included in these lessons; they are important. Children need to learn to apply the concepts they have just learned. Also, if a child cannot solve word problems that involve doubling or halving, there is a chance they did not actually learn those concepts.

The last lessons have to do with adding and subtracting whole tens (multiples of ten) *mentally* (e.g. 51 + 30 or 72 − 40). Mental math is very important, because it builds number sense: the ability to manipulate numbers flexibly — to take them apart and put them together in various combinations. And number sense is very important: it actually predicts a student's success later on in algebra.

In this case, adding or subtracting multiples of ten is actually a concept rooted in place value. As long as the child understands place value (tens and ones), these types of problems are very easy. If your child has trouble, it is a sign they perhaps have not grasped place value with two-digit numbers.

Also, don't forget the free videos matched to the curriculum at **https://www.mathmammoth.com/videos/**.

Pacing Suggestion for Chapter 1

Please add one day to the pacing for the test if you will use it. Note that the lessons in the chapter can take several days to finish. As a general guideline, second graders should finish 1.5-2 pages daily or 8-10 pages a week. Please also see the user guide at https://www.mathmammoth.com/userguides/ .

The Lessons in Chapter 1	page	span	suggested pacing	your pacing
Some Review	10	*2 pages*	2 days	
The 100-Chart and More Review	12	*3 pages*	2 days	
Fact Families	15	*2 pages*	1 day	
Ordinal Numbers	17	*2 pages*	1 day	
Even and Odd Numbers	19	*2 pages*	1 day	
Doubling	21	*3 pages*	2 days	
One-Half	24	*2 pages*	2 days	
Adding with Whole Tens	26	*3 pages*	2 days	
Subtracting Whole Tens	29	*2 pages*	1 day	
Review Chapter 1	31	*2 pages*	2 days	
Chapter 1 Test (optional)				
TOTALS		*23 pages*	16 days	

Games and Activities

Shuffle the Order

You need: Ten stuffed animals and a deck of number cards with numbers 1-10. Optionally: make a slide for the stuffed animals to slide down on.

Activity: Arrange the animals standing in a line, as if waiting for their turn to go on a slide. On your turn, draw two cards from the deck of number cards. The cards will act as ordinal numbers. The first card tells you which animal in line you will move, and the second card tells you to which position you move it to. For example, if you get 2 and 8, you will move the *second* animal to the *eighth* position in line.

After ten rounds, all the stuffed animals will go down the slide, *in order*.

Cover my Double

You need: One dice, two distinct kind of markers, such as pennies and dimes, or two kinds of beans. For a game board, draw a 4x4 grid with numbers 2, 4, 6, 8, 10, and 12 written multiple times.

4	2	10	8
8	4	8	12
6	12	10	6
2	6	4	8

Game Play: This is a game for two players. At your turn, throw the dice, and cover the double of what you get from the dice with one of your markers. Then it is the other player's turn. If the squares with your double are already covered, the turn passes to the other player. The winner is the person who first gets three of their markers in a row, or column, or diagonally.

Games and Activities at Math Mammoth Practice Zone

Hidden Picture Addition Game
Use a number range of 3 to 19, or some other, to practice addition.
https://www.mathmammoth.com/practice/mystery-picture

Hidden Picture Subtraction Game
Choose a number range of 2 to 18, for example, to practice subtraction in this fun game.
https://www.mathmammoth.com/practice/mystery-picture-subtraction

Two-Digit Mental Addition - Online Practice
Practice adding one two-digit number and one single-digit number without regrouping in this online quiz.
https://www.mathmammoth.com/practice/addition-subtraction-two-digit#opts=2p1dnr

Two-Digit Mental Subtraction - Online Practice
Practice subtracting a single-digit number from a two-digit number without regrouping in this online quiz.
https://www.mathmammoth.com/practice/addition-subtraction-two-digit#opts=2m1dnr

"7 Up" Card Game
You will see seven cards dealt face up. Simply choose any two cards that make 10 (or your chosen sum) to discard. When there are no cards that make that sum, click the deck to deal more cards. For this chapter, choose sums of 7, 8, 9, or 10.
https://www.mathmammoth.com/practice/seven-up

Skip-count in a 100-chart
Fill in numbers on a 100-chart in a specific skip-counting pattern. You can choose by which number to skip-count, and also the starting and ending numbers for the grid.
https://www.mathmammoth.com/practice/skip-count-hundred-chart

Fact Families
Choose which fact family or families to practice, and the program will give you addition and subtraction problems from those, including with missing numbers.
https://www.mathmammoth.com/practice/fact-families

Even and Odd
Sort numbers into even and odd by dragging each kind of number to its own "box" in this simple game.
https://www.mathmammoth.com/practice/even-or-odd

Fruity Math: Subtraction
Add a two-digit number and a multiple of ten (such as 57 − 20). Click the fruit with the correct answer and try to get as many points as you can within two minutes.
https://www.mathmammoth.com/practice/fruity-math#op=subtraction&duration=120&mode=manual&config=21,99x1__1,9x10&allow-neg=0

Fruity Math: Addition
Add a two-digit number and a multiple of ten (such as 26 + 30). Click the fruit with the correct answer and try to get as many points as you can within two minutes.
https://www.mathmammoth.com/practice/fruity-math#op=addition&duration=120&mode=manual&config=1,90x10__11,80x1&max-sum=100

Further Resources on the Internet

These resources match the topics in this chapter, and offer online practice, online games (occasionally, printable games), and interactive illustrations of math concepts. We heartily recommend you take a look. Many people love using these resources to supplement the bookwork, to illustrate a concept better, and for some fun. Enjoy!

https://links.mathmammoth.com/gr2ch1

Scan me

(This page intentionally left blank.)

Fact Families

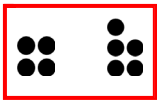
When two addition and two subtraction facts use the same numbers, it is called a "*fact family*."

Sometimes in a subtraction problem, the *total* is asked:

☐ − 8 = 20

You know 20 and 8 are the "parts," and the total is missing. To find the total, just add the "parts":

20 + 8 = *28*



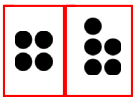
4 + 5 = 9

5 + 4 = 9

9 − 5 = 4

9 − 4 = 5

Notice the TOTAL. The subtraction sentences *start* with the total.



4 + 5 = 9

5 + 4 = 9

9 − 5 = 4

9 − 4 = 5

Notice the PARTS. The two parts make up the total.

1. Write two addition and two subtraction sentences—a fact family!

a.

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

b.

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

c.

____ + ____ = ____

____ + ____ = ____

____ − ____ = ____

____ − ____ = ____

2. Fill in the missing numbers. The four problems form a fact family.

a.

2 + ☐ = 8

☐ + 2 = 8

8 − 2 = ☐

8 − ☐ = 2

b.

____ + ____ = 10

____ + ____ = 10

10 − 7 = ☐

10 − ☐ = 7

c.

____ + ____ = ____

____ + ____ = ____

9 − ☐ = 6

____ − ____ = ____

3. Write a matching addition for the subtraction. There are two possibilities.

a. ____ + ____ = ____ 8 − 2 = 6	**b.** ____ + ____ = ____ 20 − 7 = 13	**c.** ____ + ____ = ____ 60 − 20 = 40

When the first number is missing in a subtraction, it is the TOTAL that is missing.

You can find the TOTAL by adding the two numbers (those are the "parts").

$\square - 6 = 2$

The total is missing. 6 and 2 are the "parts." So we add them. 2 + 6 = 8. The missing number is 8!

It is like "adding backwards":

Add. (+)

$\boxed{8} - 6 = 2$

Add. (+)

$\boxed{23} - 3 = 20$

4. The total is missing from the subtraction sentence. Solve.

a. $\square - 5 = 4$	**b.** $\square - 7 = 2$	**c.** $\square - 7 = 10$

5. Find the missing numbers.

a. $\square - 2 = 4$ $\square - 50 = 50$ $\square - 8 = 20$	**b.** $\square - 7 = 80$ $60 + 4 = \square$ $16 + \square = 20$	**c.** $9 - \square = 5$ $77 + \square = 78$ $\square - 9 = 60$

Puzzle Corner

Find the missing numbers. This time adding backwards will NOT work!

a. $50 - \square = 10$ **b.** $100 - \square = 91$ **c.** $10 - \square - 2 = 1$

$33 - \square = 31$ $76 - \square = 72$ $9 - \square - 5 = 2$

(This page intentionally left blank.)

Chapter 2: Clock
Introduction

The second chapter of *Math Mammoth Grade 2* deals with reading the clock to the five-minute intervals, and finding simple time intervals. I recommend having on hand an analog clock where the child can turn the hands on the clock.

First we practice telling time in the form of *hours:minutes* (such as 10:20), and then using the colloquial phrases "ten after," "quarter till," and so on.

Also studied are simple time intervals, or how much time passes. When practicing these topics, ask the child to move the minute (or hour) hand on an analog clock. The child can initially use a real clock for this, and later just imagine the movement of the clock hand(s) in his or her mind.

The chapter also has one lesson about the calendar. Of course, the calendar and the months are best learned simply in the context of everyday life, as the months pass. Hang a calendar on the wall and instruct your child to look at it every day, and to cross out days as they pass.

You can find several helpful videos that match these lessons at **https://www.mathmammoth.com/videos/** .

If your child benefits from some slight spiraling, or just to keep things more interesting, feel free to mix the lessons in this chapter with the lessons in chapter 3, which is somewhat repetitive and can be more tedious to go through.

Pacing Suggestion for Chapter 2

Please add one day to the pacing for the test if you will use it. Note that the specific lessons in the chapter can take several days to finish. They are not "daily lessons." As a general guideline, second graders should finish 1.5-2 pages daily or 8-10 pages a week. Please also see the user guide at https://www.mathmammoth.com/userguides/ .

The Lessons in Chapter 2	page	span	suggested pacing	your pacing
Review—Whole and Half Hours	37	*1 page*	1 day	
The Minutes	38	*3 pages*	2 days	
The Minutes, Part 2	41	*2 pages*	1 day	
Past and Till in Five-Minute Intervals	43	*3 pages*	2 days	
How Many Hours Pass?	46	*2 pages*	1 day	
The Calendar: Weekdays and Months	48	*3 pages*	2 days	
The Calendar: Dates	51	*3 pages*	2 days	
Review Chapter 2	54	*1 page*	1 day	
Chapter 2 Test (optional)				
TOTALS		*18 pages*	12 days	

Games and Activities

Tell the Time!

You need: An analog clock that allows you to turn the clock hands, or an app that allows you to do so.

In this activity, ask your child or student to turn the clock hands to a specific time (using the five-minute marks). Once they do so, then it is their turn to give you a time that you will set the clock to. You can use random times, and also important, specific times, such as, "We need to leave for the library at 2:45."

Find the Weekday!

You need: A wall calendar

In this simple activity, ask your child or student to find the weekday of a specific date on the calendar. Once they do so, then it is their turn to tell you what day of the week a certain date falls on. You can use random dates, and also important, specific dates, such as, "What day of the week is your birthday?"

How Many Months?

You need: A wall calendar

In this simple activity, ask your child or student to find how many months it is till someone's birthday, if right now it is a certain month. For example, let's say your birthday is in January. Ask, "If right now we're in June, how many months is it till my birthday?" Take turns, so that the child can ask you similar questions.

Earlier and Later

You need: A wall calendar or a calendar app

Ask your child or student to find the date one or two weeks after or before a certain date. For example, you could ask, "What date is it two weeks before September 6?" Take turns, so that the child will also ask you similar questions.

Months Match

This is a simple activity to practice matching the names of the months to their numbers.

You need: A set of 12 number cards with numbers from 1 to 12 on them. You can use cards from a standard deck if your child understands Jack as 11 and Queen as 12.

Shuffle the cards. Ask the child to turn the cards from the deck one by one, and at each card, say the name of the month that corresponds to that number. For example, if the child gets 7, they should say "July".

Once the child can go through all 12 cards without any mistakes, give them a small reward.

Games and Activities at Math Mammoth Practice Zone

Telling Time
Practice telling time on an analog clock with this interactive online exercise. Choose "To the nearest five minutes" for this grade level.
https://www.mathmammoth.com/practice/tell-time

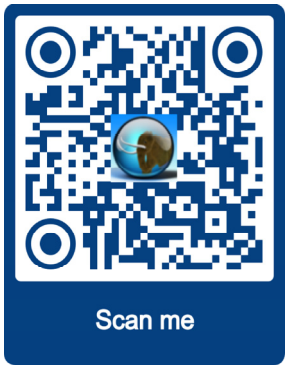
Further Resources on the Internet

We have compiled a list of Internet resources that match the topics in this chapter, including pages that offer:

- **online practice** for concepts;
- online **games**, or occasionally, printable games;
- **animations** and interactive **illustrations** of math concepts;
- **articles** that teach a math concept.

We heartily recommend you take a look! Many of our customers love using these resources to supplement the bookwork. You can use these resources as you see fit for extra practice, to illustrate a concept better and even just for some fun. Enjoy!

https://l.mathmammoth.com/gr2ch2

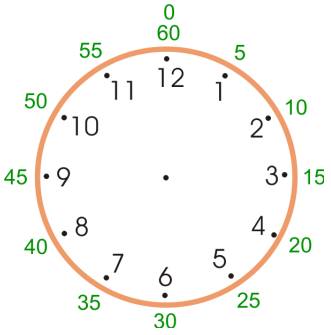


The Minutes

When the hour hand moves from one number to the next (from 1 to 2, or from 6 to 7, etc.), it takes one hour to do that.

In that same one hour of time, the *minute hand* travels **from 0 to 60 minutes**. So one hour is 60 minutes. A half-hour is 30 minutes.

When you read the minute hand, you use the green numbers (marked outside the clock face of the clock on the right). They go by fives, and are not normally marked on clocks. You need to know them. Just skip-count by fives!



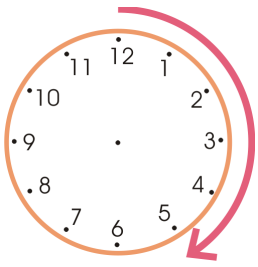
1 hour = 60 minutes.
1/2 hour = 30 minutes.

The hour hand is past 8.
The minute hand is at 15.
The time is 8:15.

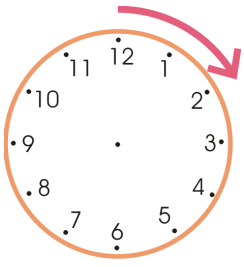
The hour hand is past 2.
The minute hand is at 25.
The time is 2:25.

The hour hand is past 11.
The minute hand is at 10.
The time is 11:10.

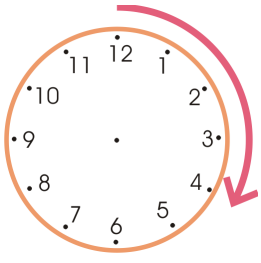
1. The arrow shows how much the minute hand travels. How many minutes pass?



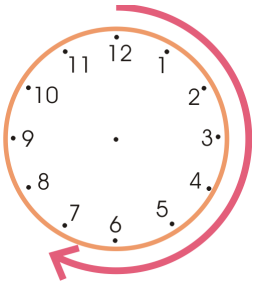
a. _____ minutes



b. _____ minutes



c. _____ minutes



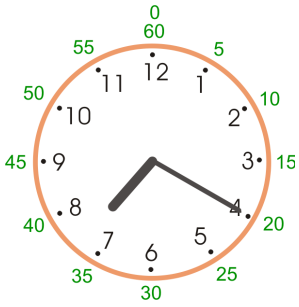
d. _____ minutes

2. Write the time. This special clock shows the numbers for hours *and* for minutes.

a. _____ : _____

b. _____ : _____

c. _____ : _____

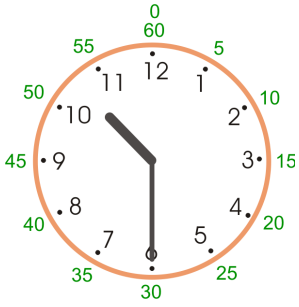


d. _____ : _____

e. _____ : _____

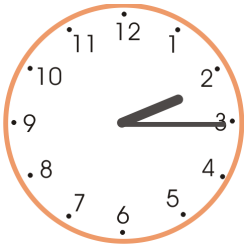
f. _____ : _____

g. _____ : _____



h. _____ : _____

3. Write the time using the normal clock. Remember, the numbers for the minute hand are not shown, and they go by fives!



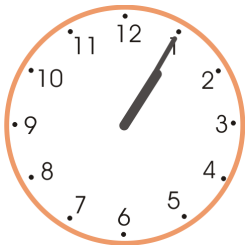
a. _____ : _____

b. _____ : _____

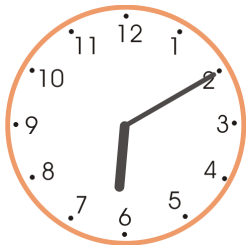
c. _____ : _____

d. _____ : _____

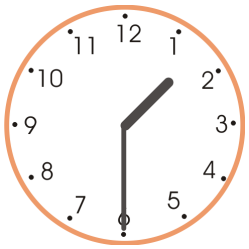
e. _____ : _____



f. _____ : _____

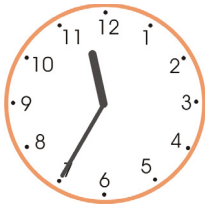


g. _____ : _____

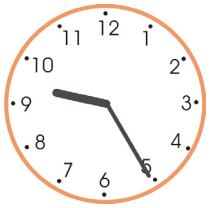
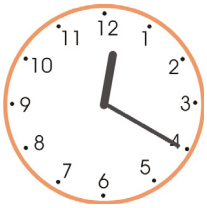


h. _____ : _____

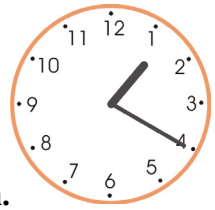
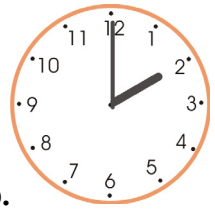
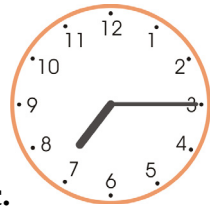
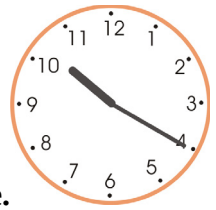
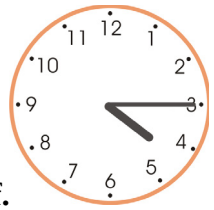
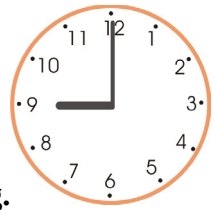
4. Find the clock that shows 11:25 and the clock that shows 11:05.

a. 	**b.** 	**c.** 	**d.** 

5. Write the time.

a.  _____ : _____	**b.**  _____ : _____	**c.**  _____ : _____	**d.**  _____ : _____

6. Write the time that the clock shows, and the time 5 minutes later. Imagine the minute hand moving one "step" further. You can use your practice clock.

	a.  _____ : _____	**b.**  _____ : _____	**c.**  _____ : _____	**d.**  _____ : _____
5 min. later →	_____ : _____	_____ : _____	_____ : _____	_____ : _____
	e.  _____ : _____	**f.**  _____ : _____	**g.**  _____ : _____	**h.**  _____ : _____
5 min. later →	_____ : _____	_____ : _____	_____ : _____	_____ : _____

(This page intentionally left blank.)

Chapter 3: Addition and Subtraction Facts Within 0-18

Introduction

The third chapter of *Math Mammoth Grade 2* provides lots of practice for learning and memorizing the basic addition and subtraction facts of single-digit numbers with an answer between 10 and 18.

The goal is to memorize the facts, or at least become so fluent with them that an outsider cannot tell if the child remembers the answer or uses some mental math strategy to get the answer.

Some children will accomplish this quicker and need less practice, whereas others will need more practice. Thus, don't assign all the exercises in the curriculum by default. Use your judgment, and try to match the amount of exercises to your child's need. The ones that don't get assigned can be used later for review. You can also use games to reinforce the facts, and in place of some of the exercises in the book (a list of online games is provided below).

Learning addition and subtraction facts is very important for later study. For example, we will soon learn regrouping (carrying/borrowing) in addition and in subtraction, which requires the child to be able to recall all the sums of single-digit numbers and corresponding subtraction facts efficiently and fluently.

We will start the chapter by reviewing how to complete the next whole ten. This concept is very important. For example, what number do you add to 23 to get 30? As an equation, we write: 23 + __ = 30.

In the next lesson, we study sums that go over ten, doing these sums in two parts. For example, in the sum 9 + 7, the child first completes 10 by adding 9 + 1. Then, the child adds the rest, or 6, to 10. Learning this prepares the child for addition facts where the sum is more than 10.

The next lessons, *Adding with 9*, *Adding with 8*, *Adding with 7*, and *Adding with 6*, provide lots of practice for learning and memorizing the basic addition facts. There are 20 such facts:

9 + 2 till 9 + 9: 8 facts
8 + 3 till 8 + 8: 6 facts
7 + 4 till 7 + 7: 4 facts
6 + 5 till 6 + 6: 2 facts

After those lessons, we study subtraction. First, the child subtracts to ten. This means subtracting from 14, 15, 16, etc. so that the answer is 10, for example 16 − __ = 10. In the next step, we study subtractions with an answer less than 10, such as 16 − 7. The student practices these by subtracting in two parts: First subtracting to ten, then the rest. For example, 16 − 7 becomes 16 − 6 − 1, or 14 − 6 becomes 14 − 4 − 2. This is a mental math strategy that can be relied on if the child does not know the answer by heart but it is actually not the ultimate goal. Memorizing the basic facts is the preferred way, because it frees up the brain's resources to do other things (such as to think on how to solve a word problem, or how to regroup).

The last part of this chapter includes various lessons titled *Number Rainbows* and *Fact Families with...*. These give lots of practice and reinforcement for the basic addition and subtraction facts, emphasizing the connection between addition and subtraction as a strategy for subtraction facts. You can find several helpful videos that match these particular lessons at **https://www.mathmammoth.com/videos**, in the section for 2nd grade. The lessons also include many word problems.

This chapter includes lots of repetition, drill, and practice. Therefore, you are welcome to mix the lessons from this chapter with some geometry, place value, clock, or measuring, in order to prevent boredom. For example, the child could study geometry and topics of this chapter each day, or study the two different chapters on alternate days. This is not compulsory but just a suggestion to "mix things up" in a somewhat spiral fashion.

Pacing Suggestion for Chapter 3

Please add one day to the pacing for the test if you will use it. Note that the lessons in the chapter can take several days to finish. As a general guideline, second graders should finish 1.5-2 pages daily or 8-10 pages a week. Please also see the user guide at https://www.mathmammoth.com/userguides/ .

The Lessons in Chapter 3	page	span	suggested pacing	your pacing
Review: Completing the Next Whole Ten	59	*2 pages*	2 days	
Review: Going Over Ten	61	*2 pages*	1 day	
Adding with 9	63	*2 pages*	1 day	
Adding with 8	65	*2 pages*	1 day	
Adding with 7	67	*2 pages*	1 day	
Adding with 6	69	*2 pages*	1 day	
Review—Facts with 6, 7, and 8	71	*2 pages*	2 days	
Subtract to Ten	73	*2 pages*	1 day	
Difference and How Many More	75	*3 pages*	2 days	
Number Rainbows—11 and 12 (optional)	78	*2 pages*	1 day	
Fact Families with 11	80	*1 page*	1 day	
Fact Families with 12	81	*2 pages*	1 day	
Number Rainbows—13 and 14 (optional)	83	*1 page*	1 day	
Fact Families with 13 and 14	84	*3 pages*	2 days	
Fact Families with 15	87	*2 pages*	1 day	
Fact Families with 16	89	*2 pages*	1 day	
Fact Families with 17 and 18	91	*2 pages*	1 day	
Mixed Review Chapter 3	93	*2 pages*	2 days	
Review Chapter 3	95	*3 pages*	1 day	
Chapter 3 Test (optional)				
TOTALS		*36 pages*	22 days	
with optional content		*(39 pages)*	(24 days)	

Games and Activities

12 Out (or *11 Out, 13 Out, 14 Out)*

You need: A deck of number cards, or regular playing cards. The values of the face cards are Jack = 11, Queen = 12, King = 13.

Preparation: Choose a target sum, such as 12. The game works best for target sums 14 or less. Deal seven cards to each player. Place the rest face down in a pile in the middle of the table.

Game play: At your turn, first take one card from the pile. Then try to find pairs of cards in your hand that add up to 12, and discard any such pairs. Discard the card 12 (queen) also if you have it. If you cannot find any such pairs, ask for any one card you want (such as 7) from the player to your right (as in "Go Fish"). That player, if he has it, must give it, and you will then discard the pair that makes 12. Then it is the next player's turn. The player who first discards all the cards from his hand is the winner.

Variations:
* Deal more than seven cards.
* Instead of 12, players discard cards that add up to 12, 13, or 14.

Addition (or Subtraction) Challenge

You need: A standard deck of playing cards from which you remove the face cards. For the subtraction challenge, include the face cards also (Jack = 11, Queen = 12, King = 13).

Game Play: In each round, each player is dealt two cards face up, and has to calculate their sum or difference (add/subtract). The player with the highest sum or difference gets all the cards from the other players. After enough rounds have been played to use all of the cards, the player with the most cards wins. If two or more players have the same sum, then those players get an additional two cards and use those to resolve the tie.

Number Bonds in the Pond

You need: A standard deck (or several) of playing cards or number cards. The values of the face cards are Jack = 11, Queen = 12, King = 13.

Preparation: Choose a target sum for the game. If the target sum is 12, make a deck of cards consisting of numbers 1 through 11. If the target sum is 11, make a deck of numbers 1-10. And so on. (The deck always consists of numbers that are from 1 through X − 1 where X is the target sum.) Place a target number card face up between the players, and spread out the rest of the cards face down, like a pond, between the players.

Game play: At your turn, if you don't have any cards in your hand, take two cards from the pond. If you do, take one card from the pond. Now check if any two cards in your hand add up to the target number. If so, put those cards away to your personal pile. If not, it is the next player's turn. The game ends when there are no more cards in the pond. The winner is the person with the most cards in their personal pile.

Variation: Allow three cards/numbers to be added to reach the target number.

Note: Depending on the number of players, you may need several decks of cards for the pond.

Get Out of My House

You need: A deck of playing cards or number cards from 3 to 10.

Preparation: On a shared piece of paper, draw boxes (houses) numbered from 6 to 20. This works best as a two-player game, and each player needs seven tokens that are distinct from the other player's tokens. Place the deck of cards in the middle, cards face down.

Game play: During a turn, a player takes two cards from the deck, adds them, and then puts their token in a house with fewer than three of the opponent's tokens. If the house contains one or two of the opponent's tokens, those tokens are given back to the opponent and the player says "Get out of my house." The first player to place all their tokens in houses wins.

Variation: Allow subtraction and/or multiplication to be used, along with addition.

*This game is adapted from **https://www.earlyfamilymath.org** and published here with permission.*

Games and Activities at Math Mammoth Practice Zone

Single-Digit Addition
Simple practice of addition facts with single-digit addends.
https://www.mathmammoth.com/practice/addition-single-digit#questions=10&toe=18&pt=general

Hidden Picture Addition Game
Use a number range of 2 to 9 to specifically practice basic addition facts.
https://www.mathmammoth.com/practice/mystery-picture

7 Up Card Game
You will see seven cards dealt face up. Simply choose any two cards that make 10 (or your chosen sum) to discard. When there are no cards that make that sum, click the deck to deal more cards. For this chapter, choose sums of 11, 12, 13, and 14.
https://www.mathmammoth.com/practice/seven-up

Fact Families
Choose which fact family or families to practice, and the program will give you addition and subtraction problems from those, including with missing numbers. For this chapter, choose fact families with 11, 12, 13, 14, and 15.
https://www.mathmammoth.com/practice/fact-families

Mathy's Berry Picking Adventure
Join Mathy, our mammoth mascot, on his berry-picking adventure, and practice your basic addition or subtraction facts!
https://www.mathmammoth.com/practice/mathy-berries#mode=addition-single&duration=2m

https://www.mathmammoth.com/practice/mathy-berries#mode=sub-20&duration=2m

Bingo
Simply click on the right answer in the grid, and it will be colored green. Once you get five in a row, a column, or diagonally, and bingo, you win! For this chapter, choose Addition (Single-Digit) or Subtraction (Under 20).
https://www.mathmammoth.com/practice/bingo

Fruity Math
Click the fruit with the correct answer and try to get as many points as you can within two minutes. The first link below is for addition facts, the second one for subtraction within 0-18.
https://www.mathmammoth.com/practice/fruity-math#op=addition&duration=120&mode=manual&config=2,9x1__3,9x1&max-sum=1000

https://www.mathmammoth.com/practice/fruity-math#op=subtraction&duration=30&mode=manual&config=11,18x1__2,9x1&allow-neg=0

Further Resources on the Internet

We have compiled a list of Internet resources that match the topics in this chapter, including pages that offer:

- **online practice** for concepts;
- online **games**, or occasionally, printable games;
- **animations** and interactive **illustrations** of math concepts;
- **articles** that teach a math concept.

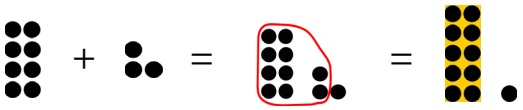
We heartily recommend you take a look! Many of our customers love using these resources to supplement the bookwork. You can use these resources as you see fit for extra practice, to illustrate a concept better and even just for some fun. Enjoy!

Scan me

https://l.mathmammoth.com/gr2ch3

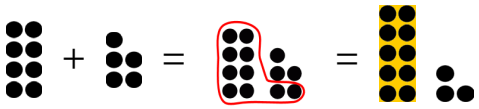
Adding with 8

Imagine that 8 wants to be a 10! It takes two from the other number (from 3). So, 8 becomes 10, and only 1 is left over.



8 + 3 = 10 + 1 = 11

8 wants to be a 10! So, it takes two from the other number (from 5). So, 8 becomes 10, and 3 are left over.

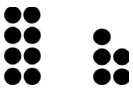
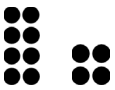
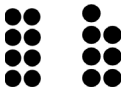
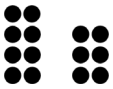
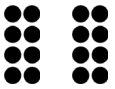
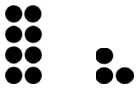


8 + 5 = 10 + 3 = 13

Use the list on the right to practice. Don't write the answers there. Just point to different problems and say the answer aloud.

8 + 1 = ☐
8 + 2 = ☐
8 + 3 = ☐
8 + 4 = ☐
8 + 5 = ☐
8 + 6 = ☐
8 + 7 = ☐
8 + 8 = ☐
8 + 9 = ☐

1. Add. First, circle the ten.

 **a.** 8 + 5 10 + 3 = ____	 **b.** 8 + 4 10 + ____ = ____	 **c.** 8 + ____ 10 + ____ = ____
 **d.** 8 + ____ = 10 + ____ = ____	 **e.** 8 + ____ = 10 + ____ = ____	 **f.** 8 + ____ = 10 + ____ = ____

2. It is good to memorize the doubles, also. Fill in.

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

Addition facts with eight. Do not write the answers down, but just practice the sums.

8 + 0 = ☐	8 + 5 = ☐	8 + 8 = ☐	8 + 9 = ☐
8 + 3 = ☐	8 + 7 = ☐	8 + 1 = ☐	8 + 4 = ☐
8 + 10 = ☐	8 + 1 = ☐	8 + 6 = ☐	8 + 2 = ☐

3. Add and fill in what is missing.

a. 8 + 4 = _____ 8 + 6 = _____	**b.** 7 + 8 = _____ 8 + 5 = _____	**c.** 3 + 8 = _____ 8 + 9 = _____
d. 8 + ____ = 13 8 + ____ = 15	**e.** 8 + ____ = 12 8 + ____ = 16	**f.** ____ + 8 = 11 ____ + 8 = 14

4. **a.** Jenny ate 8 strawberries, and Jack ate 5 more than what Jenny did.
How many strawberries did Jack eat?

b. Ashley is 13 years old, and Maryann is 5.
How many years older is Ashley than Maryann?

5. Find the patterns and continue them.

a. 8 + 2 = _____ 8 + 4 = _____ 8 + 6 = _____ 8 + ___ = _____ ___ + ____ = _____ ___ + ____ = _____ ___ + ____ = _____	**b.** 18 + 2 = _____ 18 + 4 = _____ 18 + 6 = _____ 18 + ____ = _____ _____ + ____ = _____ _____ + ____ = _____ _____ + ____ = _____	**c.** $\frac{1}{2}$ of 0 is _____. $\frac{1}{2}$ of 2 is _____. $\frac{1}{2}$ of 4 is _____. $\frac{1}{2}$ of _____ is _____. $\frac{1}{2}$ of _____ is _____. $\frac{1}{2}$ of _____ is _____. $\frac{1}{2}$ of _____ is _____.

(This page intentionally left blank.)

Chapter 4: Regrouping in Addition
Introduction

The fourth chapter of *Math Mammoth Grade 2* deals with addition within 0-100, both mentally and in columns, especially concentrating on regrouping in addition (carrying).

Mental math is important because it builds number sense, and in turn, number sense develops algebraic thinking. We study how to add mentally a two-digit number and a single-digit number (for example 36 + 8 or 45 + 9). To do that, children learn to use a "helping problem" composed of the single-digit numbers (6 + 8 or 5 + 9). Just like 6 + 8 fills the ten and is four more than that, even so, the sum 36 + 8 fills the *next* whole ten (40), and is four more than that, or 44.

We also study adding two-digit numbers with regrouping (aka "carrying"). This process is illustrated and explained in detail with the help of visual models. You are welcome to also use actual manipulatives if you prefer. The main concept here is that 10 ones make a new ten. This new ten is regrouped with the other tens, and written using a little "1" in the tens column.

In order to prepare for adding three or four two-digit numbers in columns, we practice explicitly how to add three or four single-digit numbers, such as 7 + 8 + 6 + 4, and the principle of adding in parts (such as 13 + 16 is the same as 10 + 10 and 3 + 6).

The lessons also include lots of word problems, a review of even and odd numbers, and occasional review problems about doubling. Once again, don't automatically assign all the problems and exercises, but use your judgment.

Pacing Suggestion for Chapter 4

Please add one day to the pacing for the test if you will use it. Note that the specific lessons in the chapter can take several days to finish. They are not "daily lessons." As a general guideline, second graders should finish 1.5 to 2 pages daily or 8 to 10 pages a week. Please also see the user guide at https://www.mathmammoth.com/userguides/ .

The Lessons in Chapter 4	page	span	suggested pacing	your pacing
Going Over to the Next Ten	101	*3 pages*	2 days	
Add with Two-Digit Numbers Ending in 9	104	*2 pages*	1 day	
Add a Two-Digit Number and a Single-Digit Number Mentally	106	*2 pages*	1 day	
Regrouping with Tens	108	*3 pages*	2 days	
Add in Columns Practice	111	*3 pages*	2 days	
Mental Addition of Two-Digit Numbers	114	*3 pages*	2 days	
Adding Three or Four Numbers Mentally	117	*2 pages*	1 day	
Adding Three or Four Numbers in Columns	119	*4 pages*	2 days	
Mixed Review Chapter 4	123	*2 pages*	1 day	
Review Chapter 4	125	*2 pages*	1 day	
Chapter 4 Test (optional)				
TOTALS		*26 pages*	15 days	

Games and Activities

Make 100

You need: Two standard decks of playing cards from which you remove the face cards and tens, leaving only numbers 1 through 9.

Game Play: In each round, each player is dealt four cards. Each player forms two 2-digit numbers with his four cards, using each card as a digit. For example, if you're dealt 4, 8, 6, and 1, you could make 84 and 16. Or, you could make 41 and 68. The goal is to make these two numbers in such a manner that their sum is as close to 100 as possible. Each player calculates the sum of their numbers mentally. The player with the sum closest to 100 wins that round, and puts all the cards played on that round to his personal pile.

In the case of a tie, the players are dealt four new cards each, and they use those to resolve the tie. After enough rounds have been played to use all of the cards in the deck, the player with the most cards in his personal pile wins.

Variation: Allow players to calculate the sums using pencil and paper. Mental math is much faster, though. (You can always add the tens separately and the ones separately, and add those two sums.)

Simple Dice

You need: five six-sided dice.

The goal of the game to is to get the maximum sum from the five dice. The game practices mental addition of several small numbers.

Game play: At your turn, roll the five dice. You have to leave at least one of the dice (hold it), but you may reroll up to four of them. Again, you have to hold at least one dice, and you can reroll the rest. After these three rolls, your turn is over. Calculate the sum of your dice. This is then written down as your score for this turn.

After a set number of turns (such as five), each player calculates their total score of all the rounds. The player with the highest total wins.

One is IN

This is a variation of the above game, Simple Dice. It adds in one additional rule, and that is why I recommend that you first play the Simple Dice game with your child or students, so they learn the basic idea of the game.

You need: five 6-sided dice

The goal of the game to is to get the maximum sum from the five dice. One of the dice has to show 1, for you to score at all.

Game play: At your turn, roll the five dice. You have to leave at least one of the dice (hold it), but you may reroll up to four of them. Again, you have to hold at least one dice, and you can reroll the rest. After four such rolls, your turn is over. If at least one of your dice shows 1, calculate the sum of your dice. This is then written down as your score for this turn. If none of your dice show 1, you do not score anything.

After a set number of turns (such as five), each player calculates their total score of all the rounds. The player with the highest total wins.

Games and Activities at Math Mammoth Practice Zone

Two-Digit Addition with Mental Math
Simple online practice of adding two-digit numbers using mental math.

- Add a two-digit and a single-digit number:
  https://www.mathmammoth.com/practice/addition-subtraction-two-digit#opts=2p1dwr
- Add two 2-digit numbers, no regrouping:
  https://www.mathmammoth.com/practice/addition-subtraction-two-digit#opts=2p2dnr
- Add two 2-digit numbers, with regrouping:
  https://www.mathmammoth.com/practice/addition-subtraction-two-digit#opts=2p2dwr

Hidden Picture Addition Game
Add two-digit numbers and reveal a hidden picture.
https://www.mathmammoth.com/practice/mystery-picture#min=11&max=99

Mathy's Berry Picking Adventure
The first link practices adding a two-digit and a single-digit number (e.g. 45 + 7). The second link practices mentally adding two 2-digit numbers (e.g. 34 + 26).

- https://www.mathmammoth.com/practice/mathy-berries#mode=addition-both&duration=2m
- https://www.mathmammoth.com/practice/mathy-berries#mode=addition-double&duration=2m

Bingo
For this chapter, choose Addition (Two-Digit) to practice mental addition of two-digit numbers.
https://www.mathmammoth.com/practice/bingo

Fruity Math
Click the fruit with the correct answer and try to get as many points as you can within two minutes.

- Add a two-digit number and nine:
  https://www.mathmammoth.com/practice/fruity-math#op=addition&duration=120&mode=manual&config=12,89x1__9,9x1&max-sum=200
- Add a two-digit and a single-digit number:
  https://www.mathmammoth.com/practice/fruity-math#op=addition&duration=120&mode=manual&config=13,89x1__3,9x1&max-sum=200
- Add two 2-digit numbers:
  https://www.mathmammoth.com/practice/fruity-math#op=addition&duration=120&mode=manual&config=11,89x1__11,99x1&max-sum=125
- Start with single-digit additions, and then advance through levels with increasingly harder sums:
  https://www.mathmammoth.com/practice/fruity-math#op=addition&duration=120&mode=levels&start-level=2

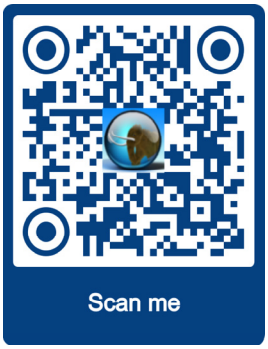
Make number sentences
Drag two flowers to the empty slots to make the given sum, practicing two-digit mental addition.
https://www.mathmammoth.com/practice/number-sentences#questions=5&types=add-11-80

Color-Grid Game — Vertical Addition Practice
Solve 12 problems of adding two-digit numbers in columns.
https://www.mathmammoth.com/practice/vertical-addition#max=99&questions=4*3&addends=2&max-digits=3

Further Resources on the Internet

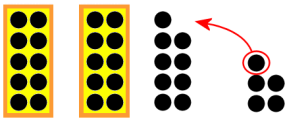
These resources match the topics in this chapter, and offer online practice, online games (occasionally, printable games), and interactive illustrations of math concepts. We heartily recommend you take a look. Many people love using these resources to supplement the bookwork, to illustrate a concept better, and for some fun. Enjoy!

https://l.mathmammoth.com/gr2ch4

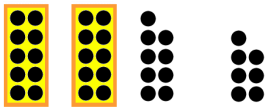
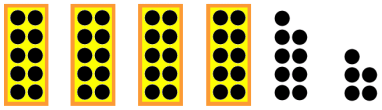
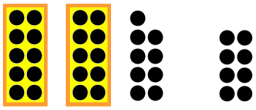
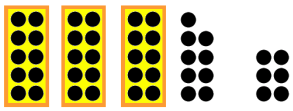
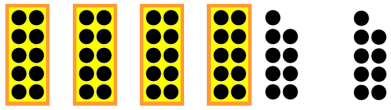


(This page intentionally left blank.)

Add with Two-Digit Numbers Ending in 9

Imagine that 29 wants to be 30... so it "grabs" one from 5. Then, 29 becomes 30, and 5 becomes 4. The addition problem is changed to 30 + 4 = 34.	 29 + 5 = _____

1. Circle the nine dots and one more dot to form a complete ten. Add.

 **a.** 19 + 5 = _____	 **b.** 29 + 7 = _____	 **c.** 49 + 5 = _____
 **d.** 29 + 8 = _____	 **e.** 39 + 6 = _____	 **f.** 49 + 9 = _____

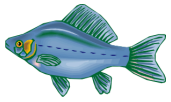
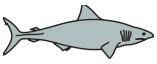
2. Add. For each problem, write a helping problem using the "ones" from the first problem.

a. 19 + 7 = _____ 9 + 7 = _____	**b.** 49 + 3 = _____ _____ + _____ = _____	**c.** 39 + 4 = _____ _____ + _____ = _____

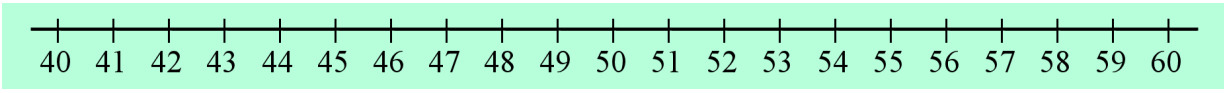
3. Add. Compare the problems.

a. 9 + 3 = _____ 19 + 3 = _____	**b.** 9 + 6 = _____ 39 + 6 = _____	**c.** 9 + 4 = _____ 49 + 4 = _____
d. 9 + 7 = _____ 39 + 7 = _____ 29 + 7 = _____	**e.** 9 + 9 = _____ 69 + 9 = _____ 79 + 9 = _____	**f.** 9 + 5 = _____ 19 + 5 = _____ 59 + 5 = _____

4. These problems review the basic facts with 9 and 8. By this time you should already remember these addition facts. Try to remember what number will fit without counting.

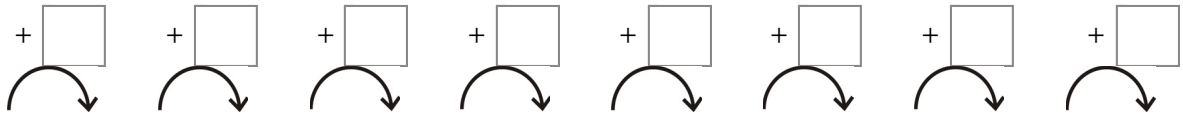
a. 	b. 	c. 	d. 
$14 - 9 =$ _____	$4 + 9 =$ _____	$15 -$ _____ $= 8$	$7 + 8 =$ _____
$15 - 9 =$ _____	$8 + 9 =$ _____	$17 -$ _____ $= 8$	$5 + 8 =$ _____
$13 - 9 =$ _____	$5 + 9 =$ _____	$12 -$ _____ $= 8$	$6 + 8 =$ _____
$18 - 9 =$ _____	$6 + 9 =$ _____	$14 -$ _____ $= 8$	$3 + 8 =$ _____
$17 - 9 =$ _____	$9 + 9 =$ _____	$13 -$ _____ $= 8$	$9 + 8 =$ _____
$16 - 9 =$ _____	$7 + 9 =$ _____	$16 -$ _____ $= 8$	$4 + 8 =$ _____

5. Find the difference of numbers. The number line can help.

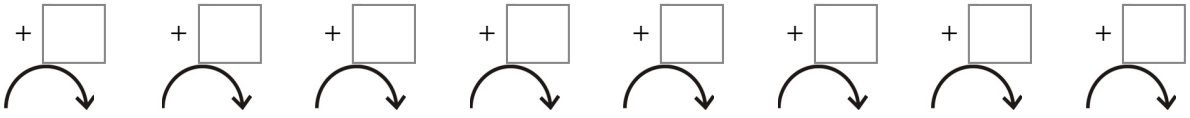


a. Difference between 41 and 53 _____	b. Difference between 60 and 46 _____	c. Difference between 59 and 48 _____

6. Find the patterns and continue them!

a. 

0 1 3 6 10 _____ _____ _____ _____

b. 

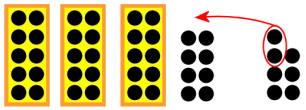
_____ _____ _____ _____ _____ 44 48 52 56

(This page intentionally left blank.)

Add a Two-Digit Number and a Single-Digit Number Mentally

Imagine that 38 wants to be 40, so it "grabs" two from 7. Then, 38 becomes 40, and 7 becomes 5.

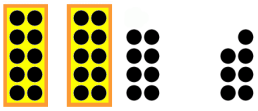
The addition problem is changed to 40 + 5 = 45.



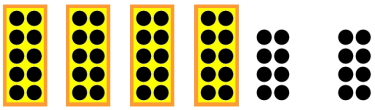
38 + 7 = _____

1. Circle the eight dots and two more dots to form a complete ten. Add.

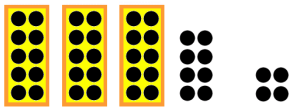
a. 18 + 6 = _____



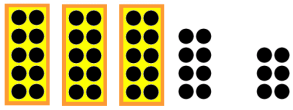
b. 28 + 7 = _____



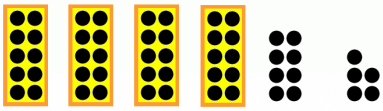
c. 48 + 8 = _____



d. 38 + 4 = _____



e. 38 + 6 = _____



f. 48 + 5 = _____

2. Add. Think of the trick explained above.

a. 18 + 7 = _____

b. 38 + 6 = _____

c. 58 + 5 = _____

3. Add. Compare the problems. What is similar about the problems in each box?

a. 8 + 3 = _____

18 + 3 = _____

b. 8 + 6 = _____

38 + 6 = _____

c. 8 + 4 = _____

78 + 4 = _____

d. 8 + 2 = _____

38 + 2 = _____

28 + 2 = _____

e. 8 + 9 = _____

68 + 9 = _____

78 + 9 = _____

f. 8 + 5 = _____

18 + 5 = _____

58 + 5 = _____