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Foreword

Math Mammoth Grade 1 comprises a complete math curriculum for the first grade mathematics studies. The curriculum meets and exceeds the Common Core standards.

The main areas of study for first grade are:

1. The concepts of addition and subtraction, and strategies for addition and subtraction facts;
2. Developing understanding of place value up to 100;
3. Developing understanding and some basic strategies for two-digit addition and subtraction.

Additional topics we study in the first grade are telling time (whole and half hours), geometric shapes, measurement, and counting coins.

This book, 1-A, covers the concepts of addition and subtraction (chapters 1 and 2) and place value with two-digit numbers (chapter 3). The book 1-B covers strategies for addition and subtraction facts, clock, shapes and measuring, adding and subtracting two-digit numbers, and counting coins.

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 particular 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/>

And 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 0: Kindergarten Math Review

Introduction

This chapter is optional, and can be used to review the most important concepts of kindergarten math:

- writing the numerals 0 to 9
- counting up to 20
- position words, color words, and some shapes (circle, triangle, square)
- simple patterns

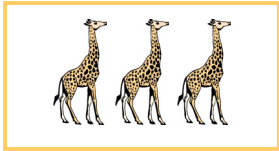
Pacing Suggestion for Chapter 0

The Lessons in Chapter 0	page	span	suggested pacing	your pacing
Equal Amounts; Same and Different	7	<i>1 page</i>	0.5 day	
Writing Numbers	8	<i>2 pages</i>	0.5 day	
Counting	10	<i>2 pages</i>	1 day	
Position Words, Colors, and Shapes	12	<i>2 pages</i>	1 day	
Patterns	14	<i>1 page</i>	1 day	
TOTALS		<i>8 pages</i>	4 days	

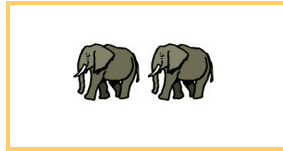
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Counting

1. Count. Write the number in the box.



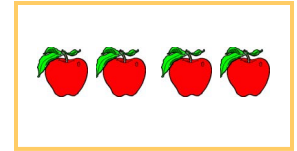
a.



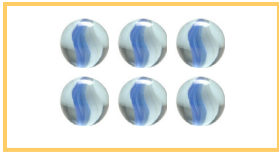
b.



c.



d.



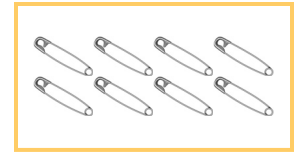
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f.



g.

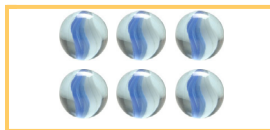


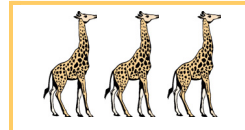
h.

2. Count. Write the number. Then circle the number that is MORE.

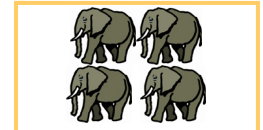


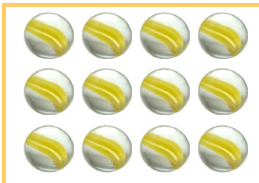
a.



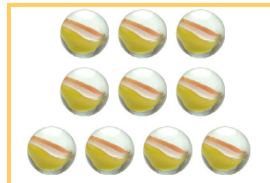


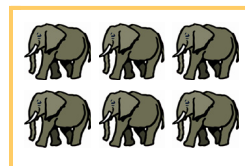
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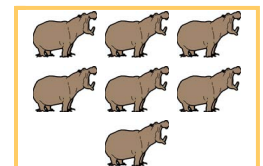


c.

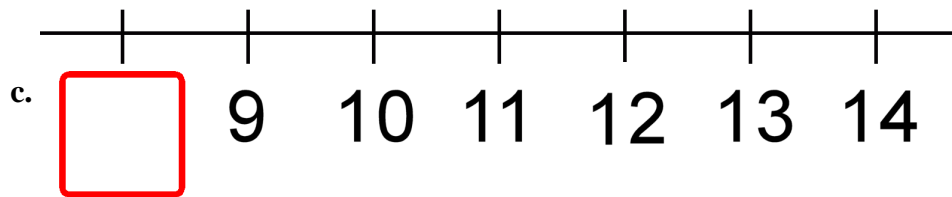
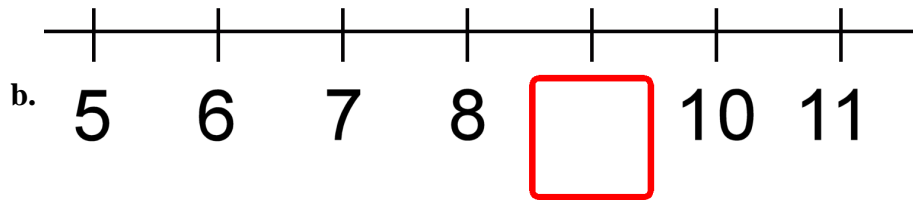
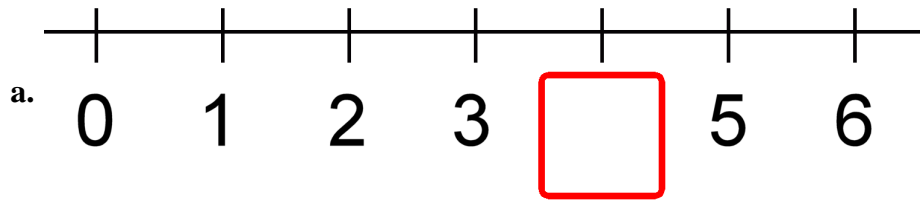




d.



3. Write the missing number below the number line.

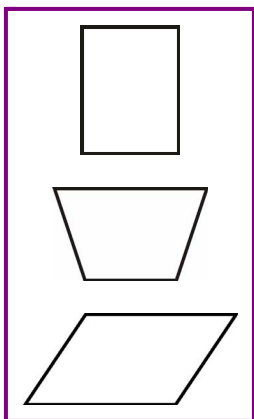


4. Circle the group that has more things. Then count ALL (both groups).
Write the number in the box below.

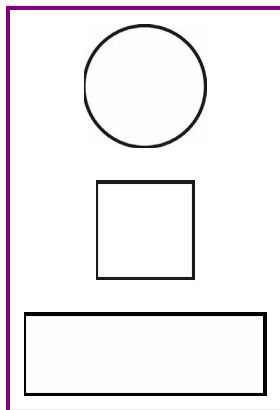
<p>a. <input type="text"/></p>	<p>b. <input type="text"/></p>	<p>c. <input type="text"/></p>
<p>d. <input type="text"/></p>	<p>e. <input type="text"/></p>	<p>f. <input type="text"/></p>

Position Words, Colors, and Shapes

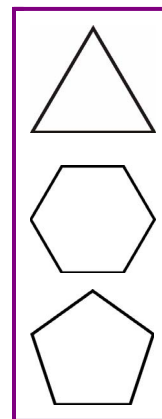
1. a. Color the top shape RED.



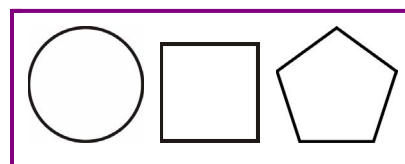
b. Color the bottom shape BLUE.



c. Color the middle shape YELLOW.



2. a. Color the shape on the right GREEN.



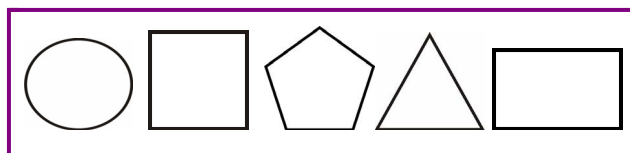
b. Color the shape in the middle BLUE.



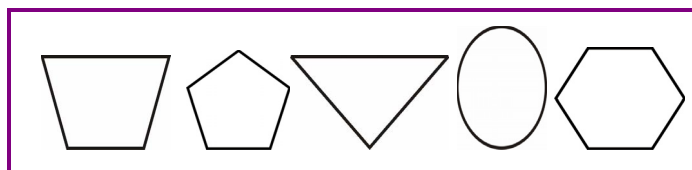
c. Color the shape on the left YELLOW.



d. Color the two shapes on the right ORANGE.



e. Color the two shapes on the left PURPLE.



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Chapter 1: Addition Within 0-10

Introduction

The first chapter of *Math Mammoth Grade 1-A* concentrates on the concept of addition and addition facts within 0-10.

The chapter starts out with very easy and visual addition problems within 0-5, where children can simply count the objects to add. You can easily adapt these early lessons to be done with concrete objects or manipulatives.

If the child does not know the symbols “+” and “=” yet, you can introduce them *orally* at first. Use blocks or other objects to illustrate, and say: “Three blocks and four blocks makes seven blocks. Three blocks *plus* four blocks *equals* seven blocks.” Then ask the child to make an addition problem with the objects, using those words. Play like that until the child can use the words “plus” and “equals” in his or her own speech. This will make it easier to learn to use the written symbols.

In the lesson *Which Is More?*, the symbols “<” and “>” are introduced as being like a “hungry alligator’s mouth.” In this lesson, children only compare numbers, such as $5 < 7$. In later lessons, children will also learn to compare expressions, such as $2 + 3 < 4 + 4$.

Next, we introduce “missing addend” problems, or problems such as $1 + \underline{\quad} = 5$. First, the lesson uses pictures, and then gradually only symbols. These problems are very important, as they lead the child to learn the connection between addition and subtraction.

A child might confuse the missing number problem $1 + \underline{\quad} = 5$ with $1 + 5 = \underline{\quad}$. To help the child see the difference, word these problems like this: “One and *how many more* make five?”

You can also model missing addend problems by drawing. In our example of $1 + \underline{\quad} = 5$, the teacher would first draw one stick, and then tell the student, “We need a total of five sticks. Draw more until there are five of them.” The number of sticks that the child needs to draw in order to make five is the number that goes on the empty line. So, you can say, “First there was one stick, then you needed to add (draw) some more to make 5. How many more did you draw?”

Then we come to the lesson *Sums with 5*. It practices the number bonds (number combinations) that add up to 5, which are 0 and 5, 1 and 4, and 2 and 3. After that, we study sums with 6, sums with 7, and so on. The goal of these lessons is to help the child to memorize addition facts within 10. However, the child does not need to fully memorize them yet. All of these lessons are building toward that goal, but the final mastery of addition facts does not have to happen this early in first grade.

My approach to memorizing the basic addition facts within 0-10 is many-fold:

1. Structured drills, such as used in the lessons *Sums with 5*, *Sums with 6*, and so on, are not random drills, because they use the pattern or the structure in the facts. This will connect the facts to a context, and help the child to better understand the facts on a conceptual level, instead of merely memorizing them at random. In each of these lessons, the child learns the number combinations that add up to the specific number (aka number bonds). This understanding is the basis for the drills.
2. Using addition facts in games and in everyday life is very helpful — and especially in games, because most children like to play games.
3. Random drilling may also be used, sparingly, as one tool among others.
4. Memory helpers can be silly mnemonics or writing math facts on a poster and hanging it on the wall. Not all children need these, but feel free to use them if you like.

These same addition facts are studied again in the following chapter about subtraction. They are also used constantly in all later math work. I recommend that children become fluent with addition facts within 0-10 by the end of first grade.

Another important thread running through the chapter is to develop a child's understanding of the symbols $+$, $<$, and $>$. The lessons in the chapter help children get used to equations such as $9 = 5 + 4$ and inequalities such as $2 < 5 + 4$, to build the correct understanding of these symbols.

Many children develop a misconception of the equals sign being an “operator,” as if it means that you need to add/subtract/multiply/divide, or “operate” on the numbers in the equation. A child with this misconception will treat the equation $9 = __ + 4$ as an addition problem $9 + 4$. Instead, the equals sign is just that, signifying that what is on the right and left side of the sign are equal in value.

A number line is an important way to model addition, as it helps to build number sense and ties in with measurement. Children also encounter addition tables, number patterns, word problems, and get used to a symbol for the unknown number (such as in $\square + 5 = 10$). So, while it may look on the surface that all we do is add small numbers, actually, a lot happens in this chapter!

Please also see the following pages for games that I recommend while studying this chapter. Games are important at this level, as they help children to practice the addition facts and also make math fun.

Lastly, don't forget to check out 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 specific lessons in the chapter can take several days to finish. They are not “daily lessons.” As a general guideline, first graders should finish 1-2 pages daily or 7-9 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
Two Groups and a Total	19	3 pages	2 days	
Learn the Symbols “+” and “=”	22	3 pages	2 days	
Addition Practice 1	25	2 pages	1 day	
Which Is More?	27	2 pages	2 days	
Missing Items	29	5 pages	2 days	
Sums with 5	34	2 pages	2 days	
Sums with 6	36	2 pages	2 days	
Adding on a Number Line	38	4 pages	2 days	
Sums with 7	42	3 pages	2 days	
Sums with 8	45	3 pages	2 days	
Adding Many Numbers	48	3 pages	2 days	
Addition Practice 2 (optional)	51	2 pages	1 day	
Sums with 9	53	4 pages	2 days	
Sums with 10	57	4 pages	2 days	
Comparisons	61	3 pages	2 days	
Review of Addition Facts	64	4 pages	2 days	
Chapter 1 Test (optional)				
TOTALS		47 pages	29 days	
with optional content		(49 pages)	(30 days)	

Games and Activities

Some Went Hiding

You need: The same number of small objects as the sum you are studying. For example, to study the sums with 5, you need 5 objects (marbles, blocks, etc).

Game play: The first player shows the objects but quickly hides some of them behind his back without showing how many. Then he shows the remaining objects to the next player, who has to say how many “went hiding.” If the player gives the right answer, it is then his turn to hide some and ask the next player to answer. If he gives a wrong answer, he forfeits his turn. This game appeals best to young children.

Variation: Instead of getting a turn to hide objects, the player who answers correctly may gain points or other rewards for the right answer.

10 Out (or 6 Out, 7 Out, 8 Out, etc.)

You need: A deck of number cards with numbers 1-10, or regular playing cards without the face cards.

Preparation: Choose a target sum, such as 10. 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 10, and discard any such pairs. Discard the card 10 also if you have it. If you cannot find any such pairs, ask for any one card you want (such as 6) 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 10. 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.
- * Deal fewer cards if there are a lot of players or the players are very young.
- * Allow players to discard *three* cards that add up to 10.
- * Instead of ten, players discard cards that add up to 5, 6, 7, 8, or 9.

Number Bonds in the Pond

You need: A standard deck (or several) of playing cards or number cards

Preparation: Choose a target sum for the game. If the target sum is 5, make a deck of cards consisting of numbers 1 through 4. If the target sum is 6, make a deck of numbers 1-5. 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 most cards in their personal pile.

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

Notes: Depending on the number of players, you may need several decks of cards to make the pond. When first playing this game with your child/students, start with 5 as the target number, and advance to target numbers of 6, 7, and onward. Playing this game several times will help the child to memorize the number bonds (the sums) associated with a particular target number.

Addition Challenge

You need: A standard deck of playing cards from which you remove the face cards and perhaps also some of the other higher-numbered cards, such as tens, nines, and eights. Alternatively, a set of dominoes works well for children who do not yet know the sums beyond 12.

Game Play: In each round, each player is dealt two cards face up, and calculates the sum. The player with the highest sum 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, those players get an additional two cards and use those to resolve the tie.

Any *board game* where you move the piece by rolling two dice also works well to practice addition.

Games and Activities at Math Mammoth Practice Zone

Single-Digit Addition Practice

<https://www.mathmammoth.com/practice/addition-single-digit>

Addition Hidden Picture Game

<https://www.mathmammoth.com/practice/mystery-picture>

Number Bonds

<https://www.mathmammoth.com/practice/number-bonds>

“7 Up” Addition Facts

<https://www.mathmammoth.com/practice/seven-up>

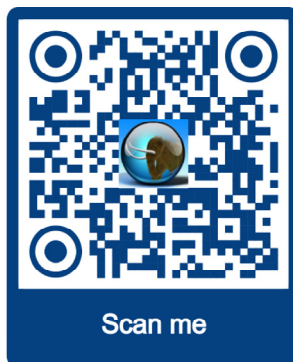
Fruity Math

<https://www.mathmammoth.com/practice/fruity-math>

Further Resources on the Internet

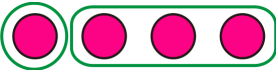
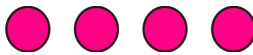
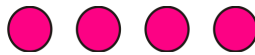



These resources match the topics in this chapter, and offer online practice, online games (occasionally, printable games), and interactive illustrations of math concepts. We heartily recommend you take a look. Many people love using these resources to supplement the bookwork, to illustrate a concept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

<https://links.mathmammoth.com/gr1ch1>

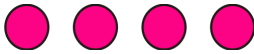
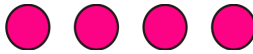
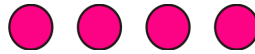








Two Groups and a Total

1. Make two groups.

<p>a. 4</p>  <p>1 and 3</p>	<p>b. 4</p>  <p>2 and 2</p>	<p>c. 4</p>  <p>3 and 1</p>
<p>d. 5</p>  <p>3 and 2</p>	<p>e. 5</p>  <p>2 and 3</p>	<p>f. 5</p>  <p>1 and 4</p>

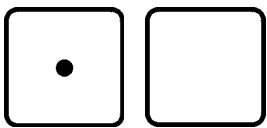
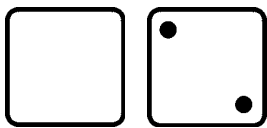
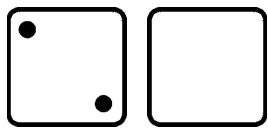
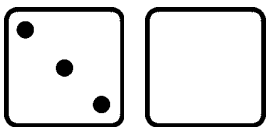
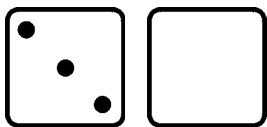
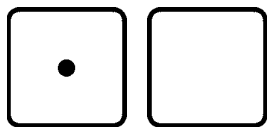
2. Make two groups. Write how many are in the second group.


<p>a. 4</p>  <p>1 and _____</p>	<p>b. 4</p>  <p>2 and _____</p>	<p>c. 4</p>  <p>3 and _____</p>
<p>d. 5</p>  <p>4 and _____</p>	<p>e. 5</p>  <p>3 and _____</p>	<p>f. 5</p>  <p>2 and _____</p>
<p>g. 5</p>  <p>1 and _____</p>	<p>h. 5</p>  <p>5 and _____</p>	<p>i. 5</p>  <p>0 and _____</p>

3. Draw as many dots as the number shows. Then divide them into two groups.
(There are many ways to do this.) Write how many are in each group.

<p>a. 3</p> <p>_____ and _____</p>	<p>b. 5</p> <p>_____ and _____</p>	<p>c. 4</p> <p>_____ and _____</p>
<p>d. 2</p> <p>_____ and _____</p>	<p>e. 6</p> <p>_____ and _____</p>	<p>f. 8</p> <p>_____ and _____</p>


4. The number at the top is the total. Draw the missing dots on the face of the blank dice.
Write on the lines how many dots are on the face of each dice.

<p>a. 3</p>  <p>_____ and _____</p>	<p>b. 6</p>  <p>_____ and _____</p>	<p>c. 5</p>  <p>_____ and _____</p>
<p>d. 4</p>  <p>_____ and _____</p>	<p>e. 6</p>  <p>_____ and _____</p>	<p>f. 5</p>  <p>_____ and _____</p>



2 and 2 4





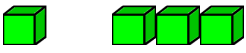




“Two and two makes four.”



1 and 4 5

“One and four makes five.”

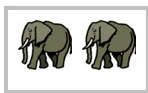
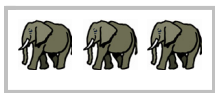
5. Write how many are in each group. Write the total in the box.

a.  _____ and _____ 	b.  _____ and _____ 	c.  _____ and _____
d.  _____ and _____ 	e.  _____ and _____ 	f.  _____ and _____
g.  _____ and _____ 	h.  _____ and _____ 	i.  _____ and _____

6. Draw circles for each number. Write the total in the box.

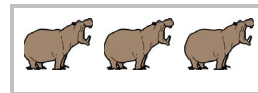
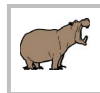
a. 2 and 2 	b. 3 and 1
c. 3 and 3 	d. 1 and 4

Learn the Symbols + and =



$$3 + 2 = 5$$

THREE plus TWO equals FIVE



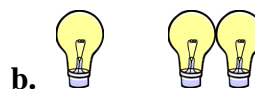
$$1 + 3 = 4$$

ONE plus THREE equals FOUR

1. Fill in the numbers. Add. Read the additions aloud using “plus” and “equals”.



$$\underline{1} + \underline{3} = \boxed{}$$



$$\underline{} + \underline{} = \boxed{}$$



$$\underline{} + \underline{} = \boxed{}$$



$$\underline{} + \underline{} = \boxed{}$$



$$\underline{} + \underline{} = \boxed{}$$



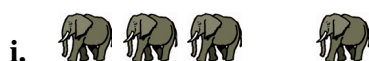
$$\underline{} + \underline{} = \boxed{}$$



$$\underline{} + \underline{} = \boxed{}$$



$$\underline{} + \underline{} = \boxed{}$$



$$\underline{} + \underline{} = \boxed{}$$





$$\underline{} + \underline{} = \boxed{}$$

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Subtraction Is "Taking Away"



From five bananas we take away three. There are two left.

$$5 - 3 = 2$$

Five minus three equals two

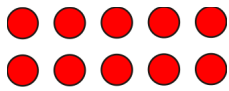
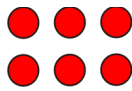
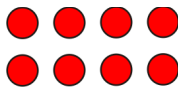
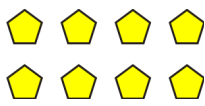
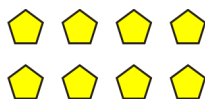
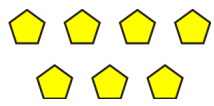
From six carrots we take away one. There are five left.




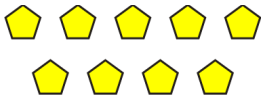
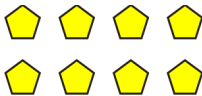
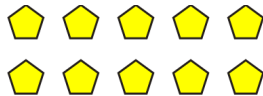






$$6 - 1 = 5$$







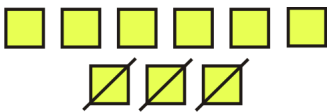
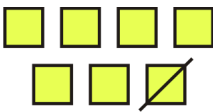
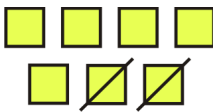
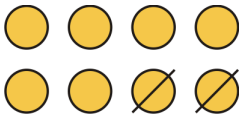
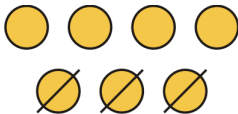
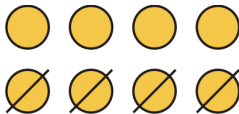
Six minus one equals five

1. Cross out objects. How many are left? Read each subtraction sentence aloud using the words "minus" and "equals".

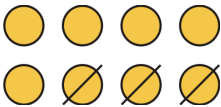
<p>10 in total. Cross out 4. How many are left?</p>  <p>a. $10 - 4 = \underline{\hspace{2cm}}$</p>	<p>6 in total. Cross out 6. How many are left?</p>  <p>b. $6 - 6 = \underline{\hspace{2cm}}$</p>	<p>8 in total. Cross out 2. How many are left?</p>  <p>c. $8 - 2 = \underline{\hspace{2cm}}$</p>
<p>8 in total, cross out 7.</p>  <p>d. $8 - 7 = \underline{\hspace{2cm}}$</p>	<p>8 in total, cross out 6.</p>  <p>e. $8 - 6 = \underline{\hspace{2cm}}$</p>	<p>7 in total, cross out 3.</p>  <p>f. $7 - 3 = \underline{\hspace{2cm}}$</p>

<p>9 in total, cross out 3.</p>  <p>g. $9 - 3 = \underline{\hspace{2cm}}$</p>	<p>6 in total, cross out 2.</p>  <p>h. $6 - 2 = \underline{\hspace{2cm}}$</p>	<p>10 in total, cross out 7.</p>  <p>i. $10 - 7 = \underline{\hspace{2cm}}$</p>
<p>Cross out 5.</p>  <p>j. $9 - 5 = \underline{\hspace{2cm}}$</p>	<p>Cross out 4.</p>  <p>k. $8 - 4 = \underline{\hspace{2cm}}$</p>	<p>Cross out 5.</p>  <p>l. $10 - 5 = \underline{\hspace{2cm}}$</p>
 <p>m. $6 - 3 = \underline{\hspace{2cm}}$</p>	 <p>n. $6 - 5 = \underline{\hspace{2cm}}$</p>	 <p>o. $5 - 5 = \underline{\hspace{2cm}}$</p>







2. Subtract. Cover the crossed-out objects with your finger to see how many are left.
Read each sentence using the words “minus” and “equals”.

 <p>a. $5 - 1 = \underline{\hspace{2cm}}$</p>	 <p>b. $6 - 3 = \underline{\hspace{2cm}}$</p>	 <p>c. $5 - 3 = \underline{\hspace{2cm}}$</p>
 <p>d. $4 - 1 = \underline{\hspace{2cm}}$</p>	 <p>e. $5 - 2 = \underline{\hspace{2cm}}$</p>	 <p>f. $6 - 2 = \underline{\hspace{2cm}}$</p>
 <p>g. $9 - 3 = \underline{\hspace{2cm}}$</p>	 <p>h. $7 - 1 = \underline{\hspace{2cm}}$</p>	 <p>i. $7 - 2 = \underline{\hspace{2cm}}$</p>
 <p>j. $8 - 2 = \underline{\hspace{2cm}}$</p>	 <p>k. $7 - 3 = \underline{\hspace{2cm}}$</p>	 <p>l. $8 - 4 = \underline{\hspace{2cm}}$</p>

3. Draw small circles to illustrate the numbers and cross out some of them to match the subtraction problem.

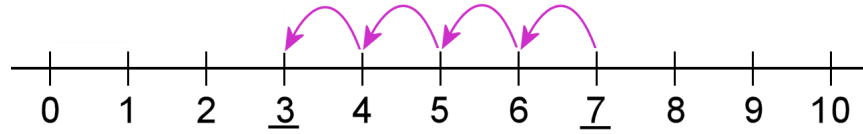
 <p>a. $8 - 3 = \underline{\hspace{2cm}}$</p>	<p>b. $5 - 1 = \underline{\hspace{2cm}}$</p>	<p>c. $10 - 7 = \underline{\hspace{2cm}}$</p>
<p>d. $7 - 2 = \underline{\hspace{2cm}}$</p>	<p>e. $10 - 1 = \underline{\hspace{2cm}}$</p>	<p>f. $9 - 7 = \underline{\hspace{2cm}}$</p>
<p>g. $6 - 3 = \underline{\hspace{2cm}}$</p>	<p>h. $7 - 3 = \underline{\hspace{2cm}}$</p>	<p>i. $10 - 4 = \underline{\hspace{2cm}}$</p>
<p>j. $9 - 5 = \underline{\hspace{2cm}}$</p>	<p>k. $10 - 6 = \underline{\hspace{2cm}}$</p>	<p>l. $6 - 4 = \underline{\hspace{2cm}}$</p>

4. Write a subtraction sentence to match the picture.

 <p>a. $\underline{\hspace{1cm}} - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$</p>	 <p>b. $\underline{\hspace{1cm}} - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$</p>
 <p>c. $\underline{\hspace{1cm}} - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$</p>	 <p>d. $\underline{\hspace{1cm}} - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$</p>
 <p>e. $\underline{\hspace{1cm}} - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$</p>	 <p>f. $\underline{\hspace{1cm}} - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$</p>

Count Down to Subtract

Count 4 steps backwards from 7. You end up at 3.

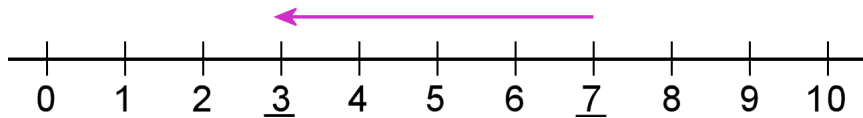


$$7 - 4 = 3$$

“Seven” “Six, five, four, three.”

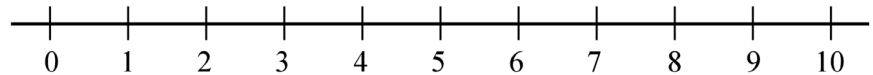
Start. Count down FOUR steps.

You can also use a single arrow:

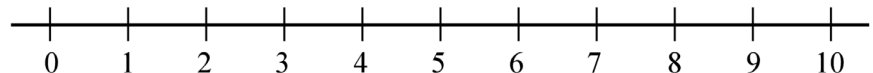


1. Draw steps (or a single arrow) to illustrate the subtraction sentence.

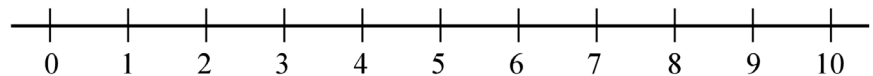
a. $7 - 2 =$ _____



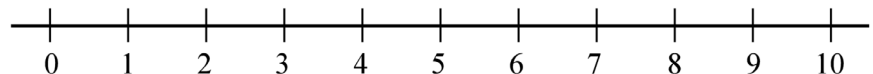
b. $8 - 4 =$ _____



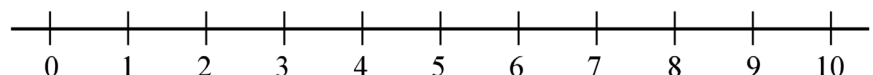
c. $6 - 5 =$ _____



d. $9 - 3 =$ _____



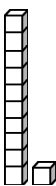
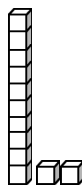
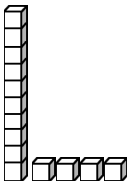
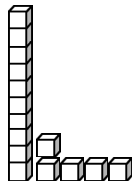
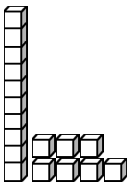
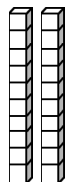
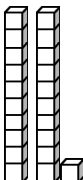
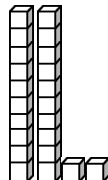
e. $10 - 3 =$ _____



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Building Numbers 11-40

1. Fill in the table. Think of the “+” sign as “and”: 10 + 3 means 10 *and* 3.

<p>a. <u>Eleven</u></p>  $\begin{array}{cc} \underline{10} & + & \underline{1} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="418 594 636 688"> <tr> <td>1</td> <td>1</td> </tr> </table>	1	1	<p>b. _____</p>  $\begin{array}{cc} \underline{\quad} & + & \underline{\quad} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="1096 598 1313 695"> <tr> <td></td> <td></td> </tr> </table>		
1	1				
<p>c. _____</p>  $\begin{array}{cc} \underline{\quad} & + & \underline{\quad} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="464 989 682 1085"> <tr> <td></td> <td></td> </tr> </table>			<p>d. _____</p>  $\begin{array}{cc} \underline{\quad} & + & \underline{\quad} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="1122 989 1339 1085"> <tr> <td></td> <td></td> </tr> </table>		
<p>e. _____</p>  $\begin{array}{cc} \underline{\quad} & + & \underline{\quad} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="464 1388 682 1484"> <tr> <td></td> <td></td> </tr> </table>			<p>f. <u>Twenty</u></p>  $\begin{array}{cc} 20 & + & \underline{0} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="1096 1388 1313 1484"> <tr> <td></td> <td></td> </tr> </table>		
<p>g. <u>Twenty-one</u></p>  $\begin{array}{cc} 20 & + & \underline{\quad} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="410 1797 628 1894"> <tr> <td></td> <td></td> </tr> </table>			<p>h. _____</p>  $\begin{array}{cc} 20 & + & \underline{\quad} \\ \text{tens} & & \text{ones} \end{array}$ <table border="1" data-bbox="1122 1791 1339 1887"> <tr> <td></td> <td></td> </tr> </table>		

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Tally Marks

1. **Tally marks.** Tally marks are counting marks. When people count they make one tally mark for each thing they count. For one item or thing, draw one tally mark as “|”. The fifth tally mark is drawn across the four others like “||||”.

Write the number that matches the tally.

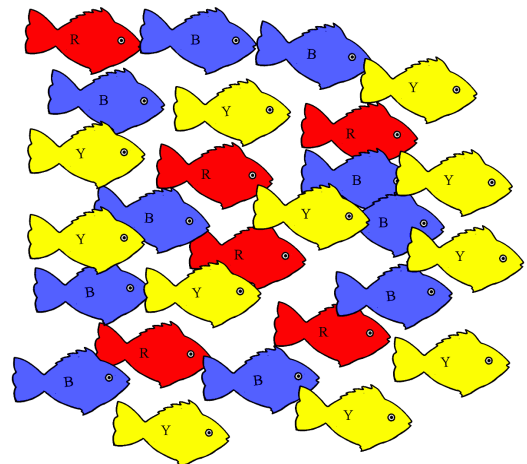
a. _____	b. _____	c. _____	d. _____

2. Draw tally marks for these numbers.

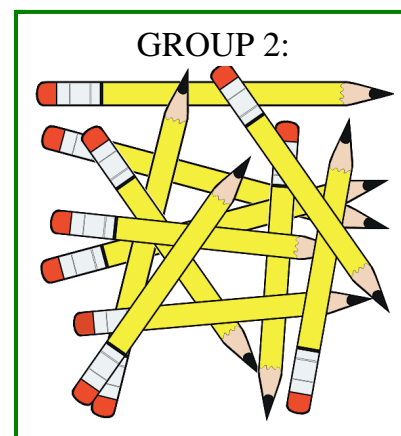
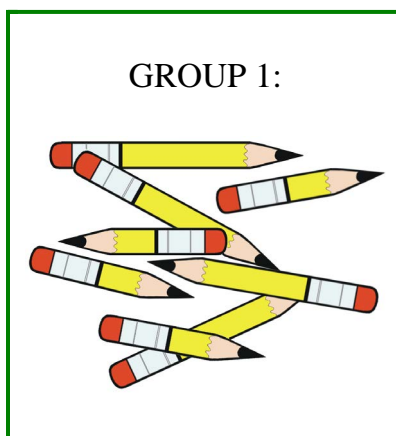
a. 7	b. 14
c. 16	d. 32
e. 41	f. 28

3. Count the fish. Use tally marks to keep track. Mark each fish you count and make a tally mark for it. That way you won't count the same fish twice. Then write the number under “Count”.

	Tally Marks	Count
Red		
Blue		
Yellow		



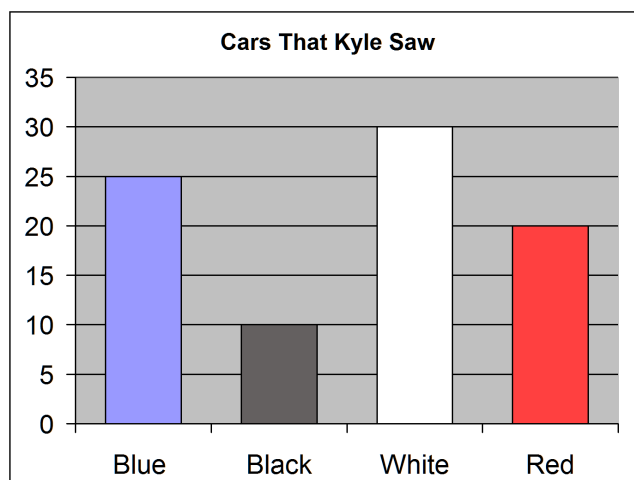
4. Count the pencils in each group. Use tally marks to keep track. Mark each pencil as you count it, and make a tally mark in the box. That way you won't count the same pencil twice.



	Tally Marks	Count
Group 1		
Group 2		

5. Do the tally marks show the same counts that the bar graph does? If not, correct the tally.

	Tally Marks
Blue	
Black	
White	
Red	



6. (Optional) Tally marks are most useful for counting things that are happening rather slowly, for example, birds that fly into the yard. For this project, count something using tally marks. For example, you could go outside and count how many red and how many gray cars you see pass by your house in 20 minutes.

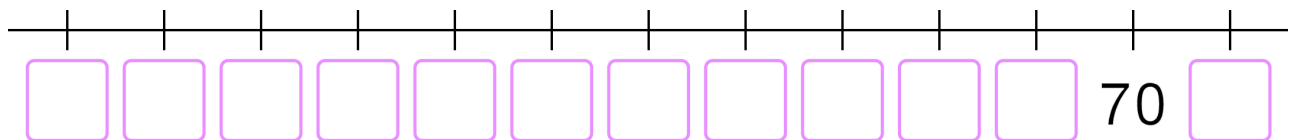
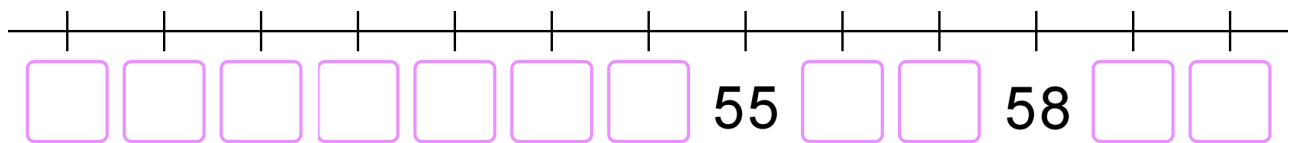
	Tally Marks	Count
Group 1		
Group 2		

Review Chapter 3

1. Name the numbers using numbers and words.

- a. 1 ten 5 ones 15 _____
- b. 6 tens 7 ones _____ _____
- c. 4 tens 0 ones _____ _____
- d. 10 tens 0 ones _____ _____
- e. 5 tens 1 one _____ _____

2. Fill in the numbers missing from the number lines.



3. Circle the number that is *more*.

- | | | | | |
|----------|----------|----------|----------|-----------|
| a. | b. | c. | d. | e. |
| 78 87 | 22 25 | 56 57 | 68 80 | 101 11 |

4. Count. You can also say this aloud with your teacher.

97, 98, _____, _____, _____, _____, _____,

_____, _____, _____, _____, _____, _____.

5. Break the numbers into their tens and ones.

a. $45 = 40 + 5$	b. $25 = \underline{\quad} + \underline{\quad}$	c. $78 = \underline{\quad} + \underline{\quad}$
$68 = \underline{\quad} + \underline{\quad}$	$54 = \underline{\quad} + \underline{\quad}$	$91 = \underline{\quad} + \underline{\quad}$

6. Build the numbers.

a. $50 + 7 = \underline{\quad}$	b. $8 + 10 = \underline{\quad}$	c. $90 + 6 = \underline{\quad}$
$20 + 0 = \underline{\quad}$	$9 + 70 = \underline{\quad}$	$9 + 60 = \underline{\quad}$

7. Put the numbers in order.

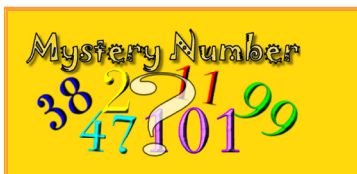
a. 57, 17, 75	b. 18, 48, 44, 41
$\underline{\quad} < \underline{\quad} < \underline{\quad}$	$\underline{\quad} < \underline{\quad} < \underline{\quad} < \underline{\quad}$

8. Compare the expressions and write $<$, $>$ or $=$.

- a. $56 \square 5 + 60$ b. $20 + 8 \square 33$ c. $60 + 5 \square 50 + 6$
- d. $34 \square 30 + 6$ e. $4 + 90 \square 49$ f. $80 + 2 \square 70 + 9$

9. Skip-count. (You can say this aloud with your teacher.)

- a. 13, 15, 17, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$
- b. $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, 78, 88, 98
- c. $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, $\underline{\quad}$, 55, 60, 65, $\underline{\quad}$



*I have five fewer ones than 39,
and one more ten than 47.*

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Foreword

Math Mammoth Grade 1 comprises a complete math curriculum for the first grade mathematics studies. The curriculum meets and exceeds the Common Core standards.

The main areas of study for first grade are:

1. The concepts of addition and subtraction, and strategies for addition and subtraction facts;
2. Developing understanding of place value up to 100;
3. Developing understanding and some basic strategies for two-digit addition and subtraction.

Additional topics we study in the first grade are telling time (whole and half hours), geometric shapes, measurement, and counting coins.

The portion of first grade included in this book, Part B, covers strategies for addition and subtraction facts (chapter 4), telling time and the calendar (chapter 5), shapes and measuring (chapter 6), adding and subtracting two-digit numbers and reading pictographs (chapter 7), and counting coins (chapter 8). The book 1-A covers addition concept, subtraction concept, and place value with two-digit numbers.

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 particular 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/>

There are free videos matched to the curriculum at <https://www.mathmammoth.com/videos/>

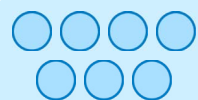
I wish you success in teaching math!

Maria Miller, the author

Sample worksheet from
<https://www.mathmammoth.com>

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Subtracting More Than One Number



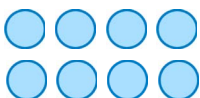
$$7 - 1 - 2 = ?$$

You have 7 circles. First you take away 1 circle, and then you take away 2 more circles.

You will have 4 circles left.

1. Subtract twice, taking away circles. You can cover the circles to help.

a.

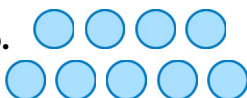


$$8 - 2 - 3 = \underline{\quad}$$

$$8 - 5 - 2 = \underline{\quad}$$

$$8 - 1 - 3 = \underline{\quad}$$

b.

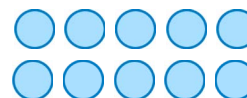


$$9 - 3 - 1 = \underline{\quad}$$

$$9 - 4 - 2 = \underline{\quad}$$

$$9 - 2 - 5 = \underline{\quad}$$

c.



$$10 - 5 - 3 = \underline{\quad}$$

$$10 - 6 - 2 = \underline{\quad}$$

$$10 - 1 - 4 = \underline{\quad}$$

2. Solve. You can draw pictures to help.

- a. Mary had ten cookies. She gave two to her brother and two to her sister. How many does she have left?

- b. Seven birds were in the tree. Three flew away. After a while, one more flew away. How many birds were left in the tree?

- c. Eight cars were in the parking lot. Then three cars left. After that two more cars left. How many cars are there now?

- d. Jack had \$5. His mom gave him \$1, and his dad gave him \$2. How many dollars does Jack have now?

You can subtract two numbers one at a time:

$$\begin{array}{r} 8 - 2 = 6 \\ 6 - 3 = 3 \end{array}$$

First take away 2. That leaves 6.
Then, from 6, subtract 3. That leaves 3.

OR you can subtract their total:

$$\begin{array}{r} 8 - 2 - 3 \\ \quad \backslash \quad / \\ 8 - 5 = 3 \end{array}$$

Check how much you need to subtract or take away *in total*. You need to subtract 2 and 3 — a total of 5. So subtract $8 - 5 = 3$.

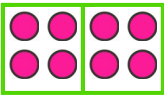
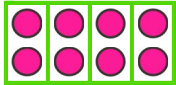
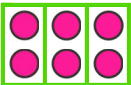
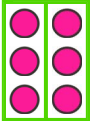
3. Subtract by either method.

a.	b.	c.
$7 - 2 - 3 = \underline{\quad}$	$9 - 7 - 1 = \underline{\quad}$	$7 - 5 - 1 = \underline{\quad}$
$9 - 2 - 6 = \underline{\quad}$	$6 - 2 - 2 = \underline{\quad}$	$10 - 6 - 1 = \underline{\quad}$

4. Solve. Compare the two problems and their results.

a.	b.	c.
$10 - 3 - 2 = \underline{\quad}$	$7 - 3 - 3 = \underline{\quad}$	$9 - 6 - 1 = \underline{\quad}$
$10 - 3 - 3 = \underline{\quad}$	$7 - 4 - 3 = \underline{\quad}$	$8 - 6 - 1 = \underline{\quad}$

5. Match the subtraction problems to the correct pictures.

	a. $8 - 2 - 2 - 2 - 2 = 0$	
	b. $8 - 4 - 4 = 0$	
	c. $6 - 2 - 2 - 2 = 0$	
	d. $6 - 3 - 3 = 0$	

Puzzle Corner

Here are some problems with four numbers!

$9 - 3 - 2 - 1 = \underline{\quad}$

$10 - 1 - 2 - 1 = \underline{\quad}$

$8 - 4 - 1 - 2 = \underline{\quad}$

Review — Facts with 6, 7, and 8

1. Practice addition and subtraction facts with 6, 7, and 8.

<p>a.</p> $0 + \underline{\quad} = 8$ $3 + \underline{\quad} = 8$ $2 + \underline{\quad} = 8$ $6 + \underline{\quad} = 8$ $5 + \underline{\quad} = 8$	<p>b.</p> $3 + \underline{\quad} = 7$ $5 + \underline{\quad} = 7$ $1 + \underline{\quad} = 7$ $6 + \underline{\quad} = 7$ $2 + \underline{\quad} = 7$	<p>c.</p> $6 - \underline{\quad} = 2$ $6 - \underline{\quad} = 5$ $6 - \underline{\quad} = 3$ $6 - \underline{\quad} = 4$ $6 - \underline{\quad} = 1$	<p>d.</p> $7 - \underline{\quad} = 2$ $8 - \underline{\quad} = 3$ $6 - \underline{\quad} = 1$ $8 - \underline{\quad} = 4$ $7 - \underline{\quad} = 4$
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2. First add and subtract. Write the answers in the boxes below. Then compare, and write $<$, $>$ or $=$.

<p>a. $8 - 2$? $7 - 3$</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">↓ <div style="background-color: #90EE90; width: 40px; height: 20px; display: inline-block;"></div></div> <div style="text-align: center;">↓ <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div></div> <div style="text-align: center;">↓ <div style="background-color: #90EE90; width: 40px; height: 20px; display: inline-block;"></div></div> </div>	<p>b. $10 - 7$? $9 - 6$</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">↓ <div style="background-color: #90EE90; width: 40px; height: 20px; display: inline-block;"></div></div> <div style="text-align: center;">↓ <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div></div> <div style="text-align: center;">↓ <div style="background-color: #90EE90; width: 40px; height: 20px; display: inline-block;"></div></div> </div>	<p>c. $7 - 6$? $4 - 2$</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">↓ <div style="background-color: #90EE90; width: 40px; height: 20px; display: inline-block;"></div></div> <div style="text-align: center;">↓ <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div></div> <div style="text-align: center;">↓ <div style="background-color: #90EE90; width: 40px; height: 20px; display: inline-block;"></div></div> </div>
<p>d. $4 + 2$ <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div> $9 - 8$</p>	<p>e. $10 - 4$ <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div> $7 - 4$</p>	<p>f. $3 + 4$ <div style="border: 1px solid black; width: 40px; height: 20px; display: inline-block;"></div> $7 - 1$</p>

3. Solve.

a. Luisa and Caleb were playing a game. Luisa had 9 game pieces and Caleb had 4. How many more game pieces did Luisa have than Caleb?

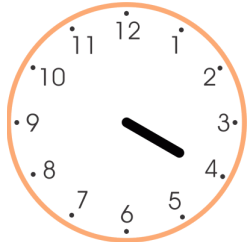
b. Luisa gave one game piece to Caleb. Now who has more game pieces?

How many more?

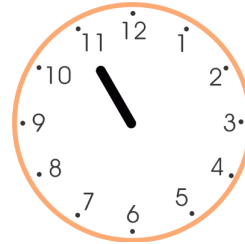
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Whole and Half Hours

In this lesson, the clock only has one hand – the HOUR hand.



The hour hand points to four – it is four hours, or “four o’clock.”

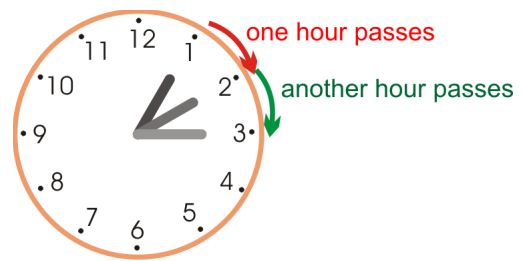


The hour hand points to eleven – it is eleven hours, or “eleven o’clock”.

The hour hand moves slowly around the clock face: from 1 to 2 to 3, and so on.

When the hour hand moves from 1 to 2, exactly one hour of time has passed.

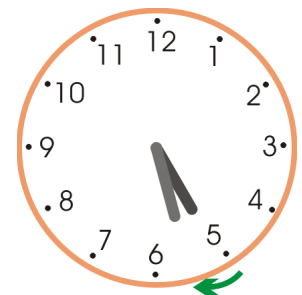
The same is true when the hour hand moves from 2 to 3. It takes the hour-hand one hour to do that.



On this clock, the hour hand pointed to 5 when it was five o’clock.

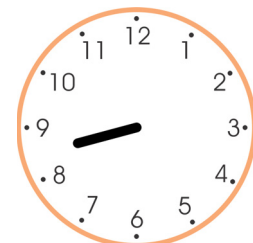
Then it moved to **halfway** between 5 and 6. We say it is **half past five**.

It takes the hour hand one-half hour to move from five to halfway between five and six.

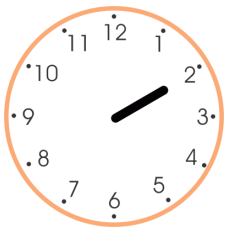
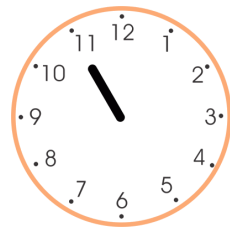
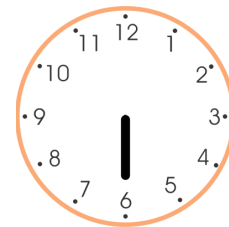
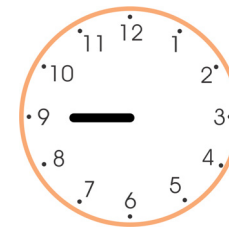


Here the hour hand has moved past eight o’clock, and is halfway between 8 and 9. We say it is half past eight.

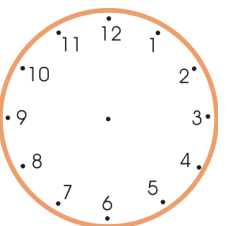
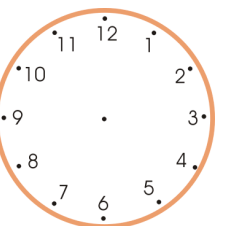
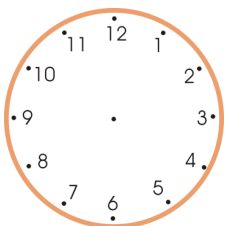
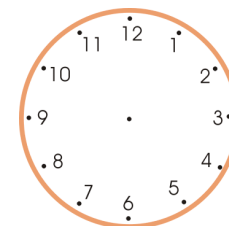
In half an hour, it will be nine o’clock.



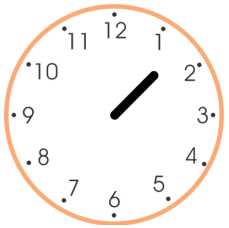
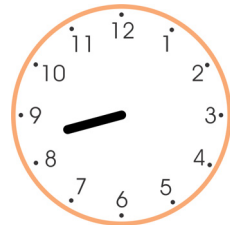
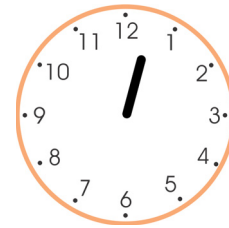
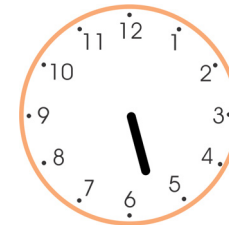
1. Write the time under each clock face.

 <p>a. _____ o'clock</p>	 <p>b. _____ o'clock</p>	 <p>c. _____ o'clock</p>	 <p>d. _____ o'clock</p>
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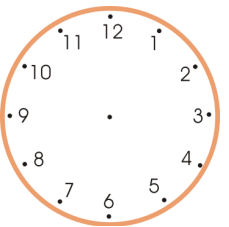
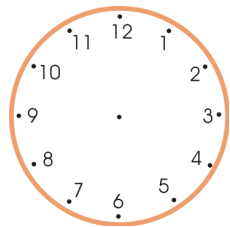
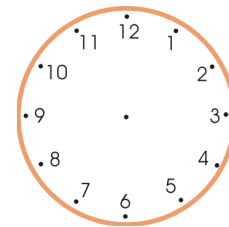
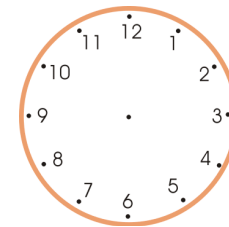
2. Draw the hour hand.

 <p>a. Five o'clock</p>	 <p>b. Eight o'clock</p>	 <p>c. Twelve o'clock</p>	 <p>d. Seven o'clock</p>
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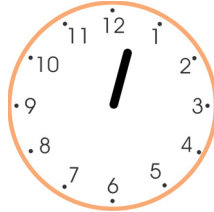
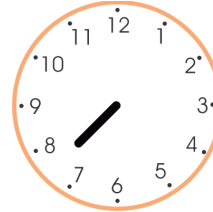
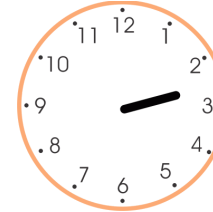
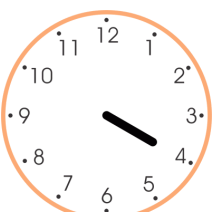



3. Write the time.

 <p>a. Half past _____</p>	 <p>b. Half past _____</p>	 <p>c. Half past _____</p>	 <p>d. Half past _____</p>
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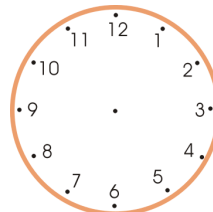
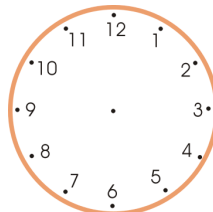
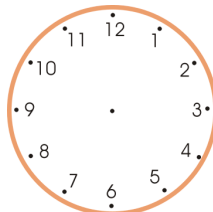
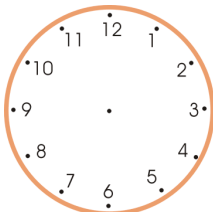
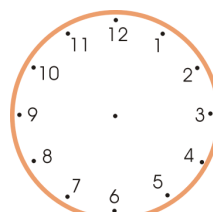
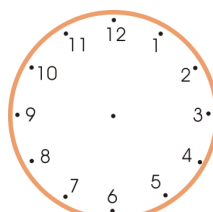
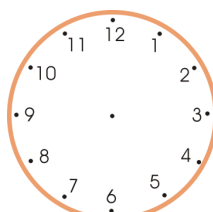
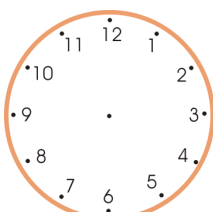
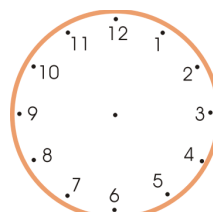
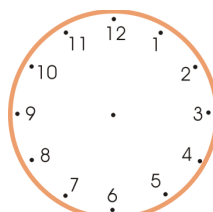
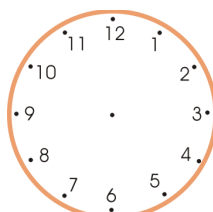
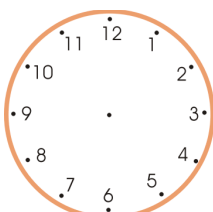
4. Draw the hour hand.

 <p>a. Half past six</p>	 <p>b. Half past three</p>	 <p>c. Half past two</p>	 <p>d. Half past four</p>
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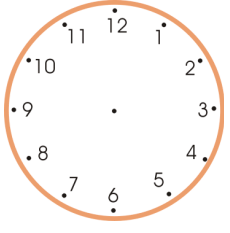
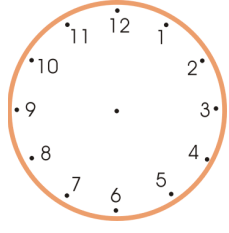
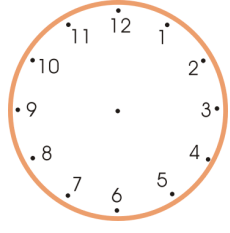
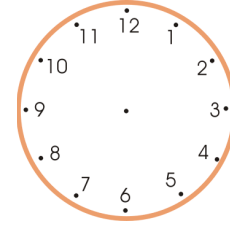
5. Write the time!

 <p>a. _____</p> <p>_____</p>	 <p>b. _____</p> <p>_____</p>	 <p>c. _____</p> <p>_____</p>	 <p>d. _____</p> <p>_____</p>
 <p>e. _____</p> <p>_____</p>	 <p>f. _____</p> <p>_____</p>	 <p>g. _____</p> <p>_____</p>	 <p>h. _____</p> <p>_____</p>



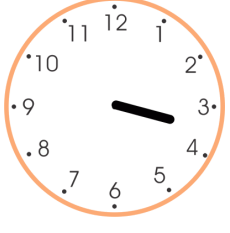
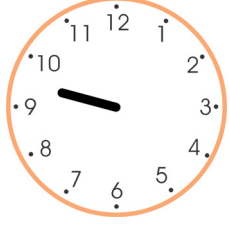
6. Draw an hour hand on each clock. In the second row, show the time a half-hour later. In the third row, show the time another half-hour later than the clock in the second row.

Draw the hour hand.	 <p>a. Five o'clock</p>	 <p>b. One o'clock</p>	 <p>c. Half past six</p>	 <p>d. Half past three</p>
A half-hour later →				
Another half-hour later →				

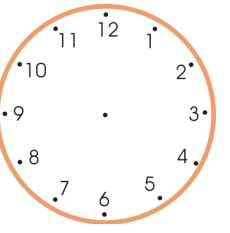
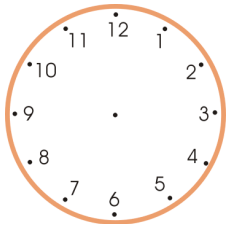
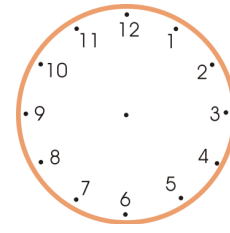
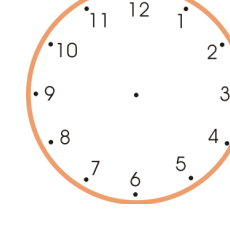
7. Draw the hour hand on each clock. Write the time that the clock will show a half-hour later.

				
	a. Three o'clock	b. Eleven o'clock	c. Half past five	d. Half past eleven
1/2 hour later →	half past _____	half past _____	_____ o'clock	_____ o'clock

8. Write the time that the clock shows. Then write what the time will be an hour later.

				
	a. _____ o'clock	b. _____ o'clock	c. half past _____	d. half past _____
An hour later →	_____	_____	_____	_____

9. Draw the hour hand on the clock face. Write what it will be an hour later.

				
	a. Three o'clock	b. Eleven o'clock	c. Half-past five	d. Half past eleven
An hour later →	_____	_____	_____	_____

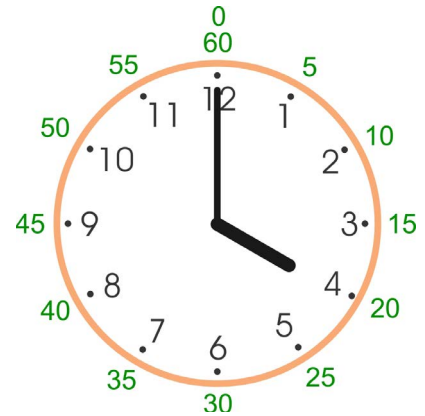
Minutes and Half Hours

The minute hand on the clock is the thinner and longer hand.

It shows us the minutes - but the numbers 1-12 on the clock face do NOT tell us the minutes.

The green numbers are for the minute hand. They are not normally written on the clock face at all.

The time on the clock is 4 o'clock, or 4:00, which is four hours and zero minutes.



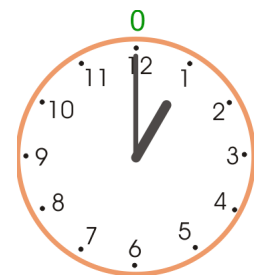
Find a clock that has a knob you can turn to move the hour and minute hands. Set the hour hand pointing to one, and the minute hand pointing straight “up”.

Move the hour hand from 1 to 2, and observe the minute hand!

Now move the hour hand from 2 to 3.
What does the minute hand do?

If you make the hour hand travel from 7 to 10,
how many “rounds” does the minute-hand make? _____

Make the minute hand travel backwards as well.

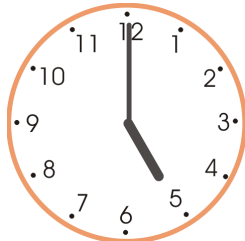


It is 1 o'clock
(and 0 minutes)

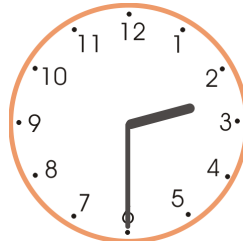
1. You know these from the previous lesson. Now the minute hand is added.
Write the time using the expressions *o'clock* or *half past*.



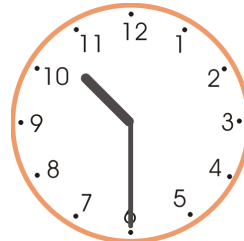
a. _____



b. _____



c. _____



d. _____

1 HOUR = 60 MINUTES!

Use your clock. How much time passes when the hour hand travels from 1 to 2? _____ hour

At the same time, the minute hand travels from 0 to 60 minutes, or once around the clock.

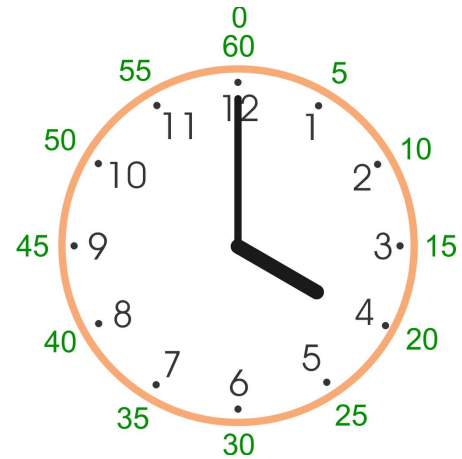
Now let the hour hand travel from 2 to half-past 2 (only half an hour). The minute hand traveled from 0 minutes to 30 minutes.

We write the time as 2:30.

That means 2 hours and 30 minutes.

Then let the hour hand travel from half-past 2 to 3 — another half an hour.

The minute hand traveled from 30 minutes to _____ (or 0) minutes.



It is 4:00.

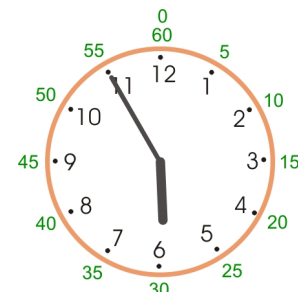
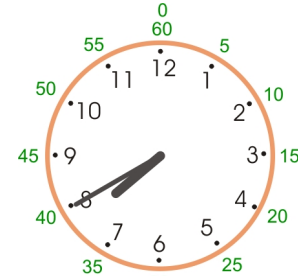
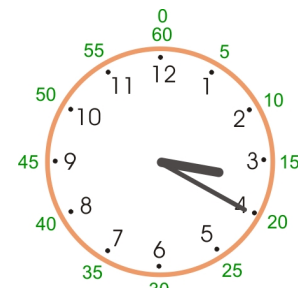
The green numbers are for the minutes. Just count by fives to learn them!

1 hour = 60 minutes.

The hour hand is past 3, and the minute hand points to 20. The time is 3:20, which is 3 hours and 20 minutes.

The hour hand *looks like* pointing to eight, but it's not quite eight o'clock. The hour hand is past seven and not yet on eight, and that is why we say the time is "seven forty," or 7:40, which is 7 hours and 40 minutes.

Again, the hour hand looks like it's pointing to six, but it's not yet six o'clock (though it is almost six). The hour hand has passed five, so we say it is "five fifty-five," or 5:55, which is 5 hours and 55 minutes.

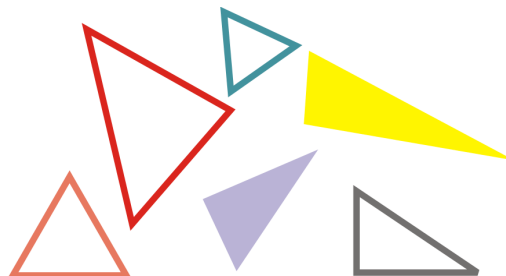


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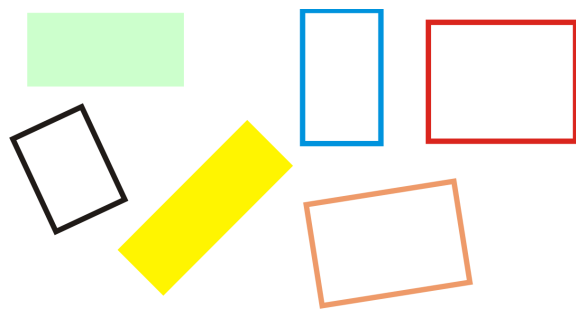
Basic Shapes



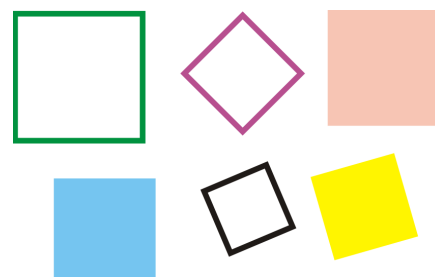
These are **circles**. They don't have any corners. They are perfectly round!



These are **triangles**. They have **THREE** corners and three sides.

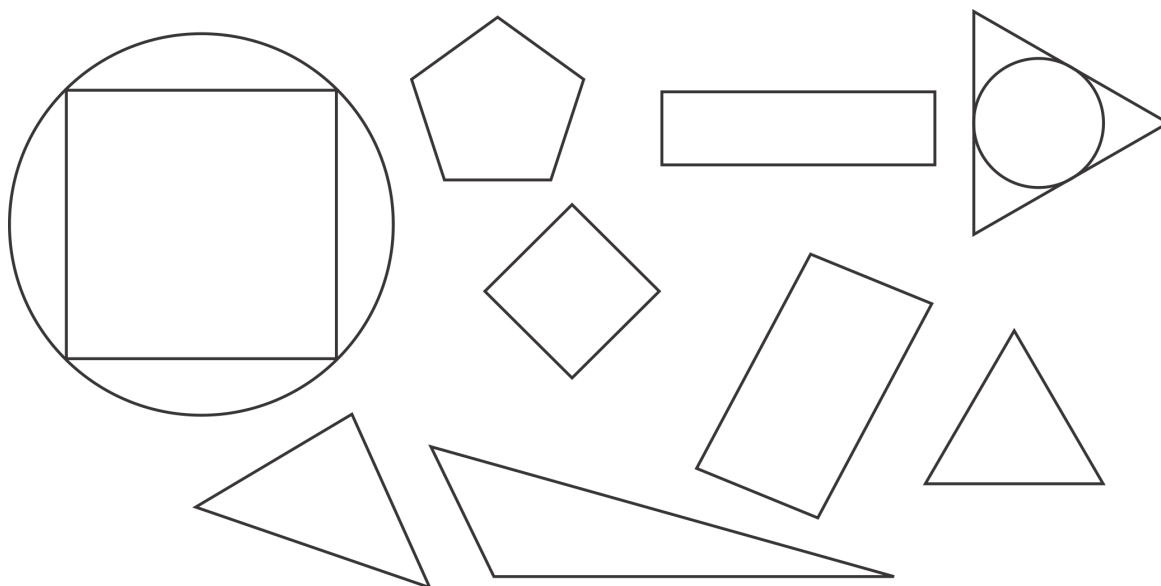


These are **rectangles**. They have four "square" corners. They look like books!



These are **squares**. Not only do squares have four square corners, but they also have four sides that are the same length.

1. Color the **circles yellow**; the **squares red**; the **triangles green** and the **rectangles blue**. One shape will not be colored.



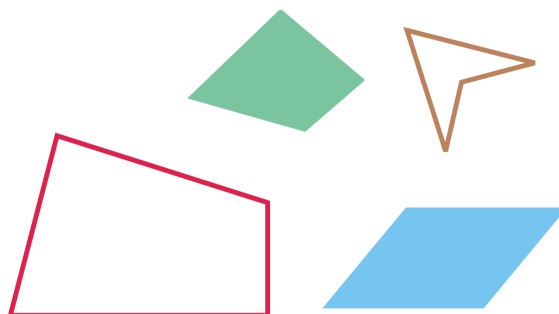
So what are these shapes?

They have four corners and four sides.
But they don't have four square corners,
like squares and rectangles do.

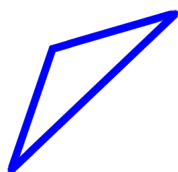
They are just **four-sided shapes** that are
not squares nor rectangles. In mathematics
we call them **quadrilaterals**.

"Quadri-" comes from *quattuor*, Latin for "four."

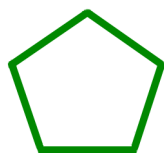
"Lateral" comes from *lateralis*, Latin for "side."



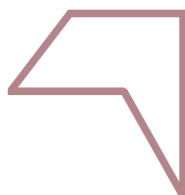
2. Write down how many corners each shape has.



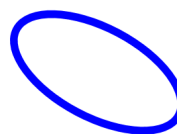
a. _____



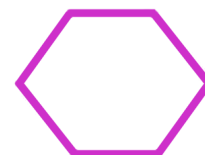
b. _____



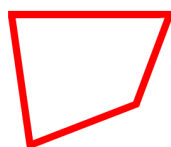
c. _____



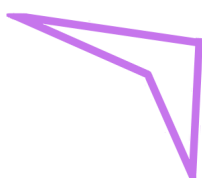
d. _____



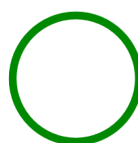
e. _____



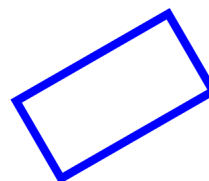
f. _____



g. _____



h. _____



i. _____



j. _____

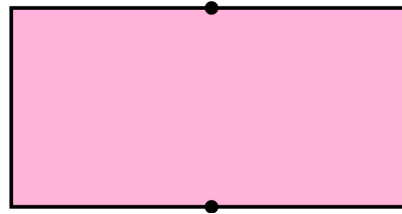
3. a. In the shapes above, there is one rectangle. Mark it with **R**.
b. Mark the other four-sided shapes with **Q** (for quadrilateral).
c. Mark the one circle with **C**.
d. Find another rounded shape that is not a circle, and mark it with **E**.

4. a. Draw three dots anywhere in this space. Join them with lines.
What shape do you get?

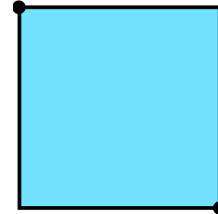
b. Once again draw three dots anywhere in this space, and join them with lines.

5. Draw a line from dot to dot so that you divide the shape into two new shapes. Use a ruler. How many sides do the new shapes have? How many corners?

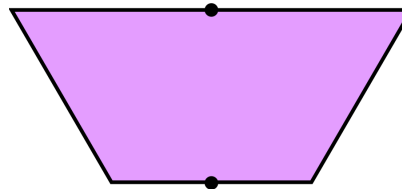
- a. The new shapes have _____ sides,
and _____ corners.
They are _____



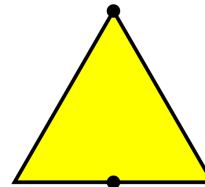
- b. The new shapes have _____ sides,
and _____ corners.
They are _____



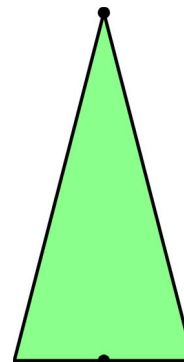
- c. The new shapes have _____ sides,
and _____ corners.
They are quadrilaterals



- d. The new shapes have _____ sides,
and _____ corners.
They are _____

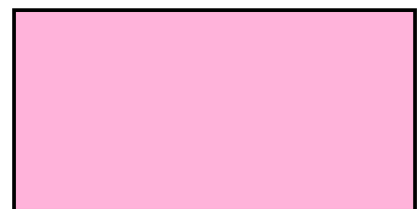


- e. The new shapes have _____ sides,
and _____ corners.
They are _____



Puzzle Corner

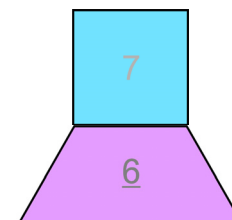
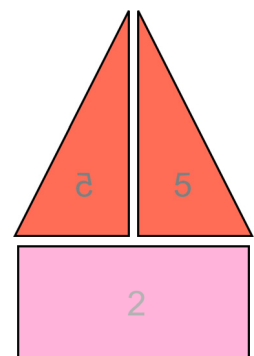
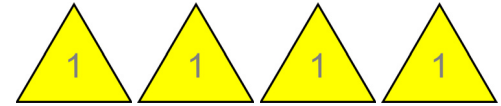
Divide this shape, using one line, into a triangle and a pentagon (five-sided shape).

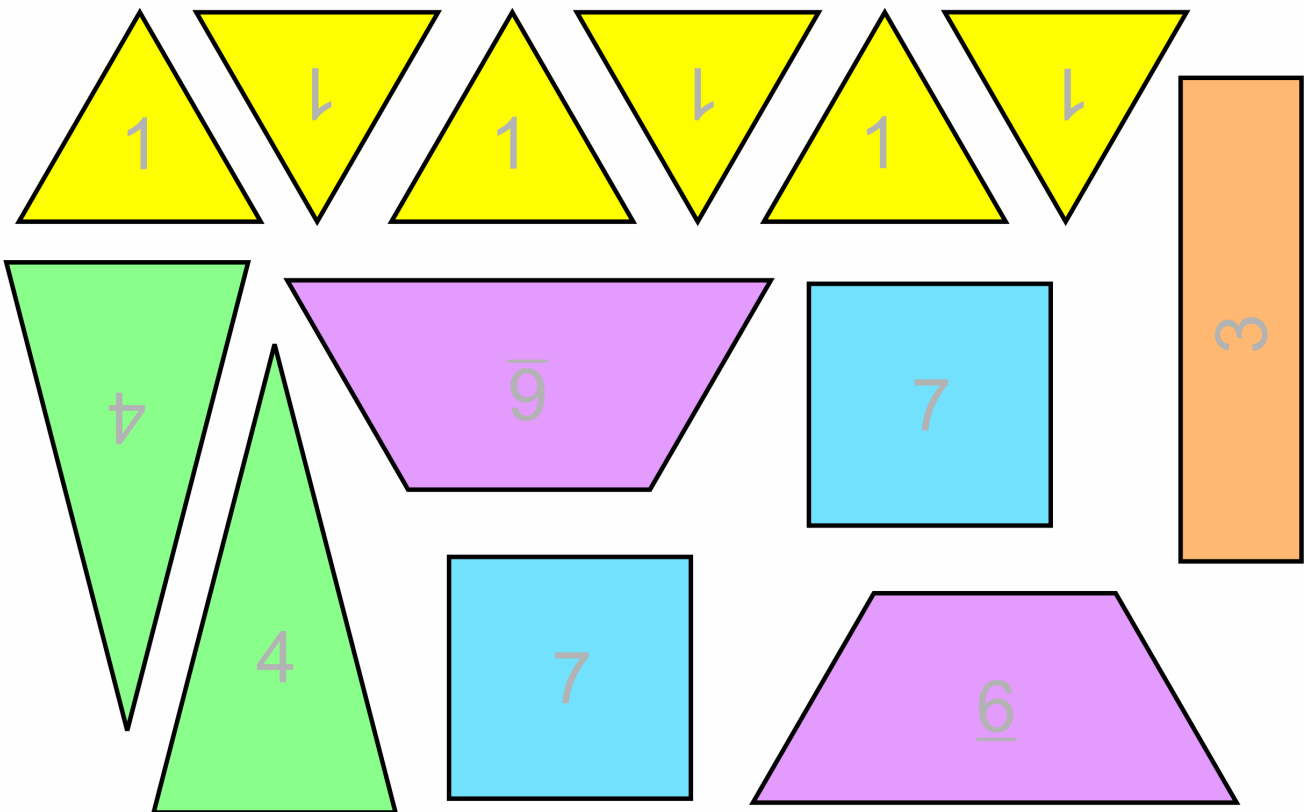
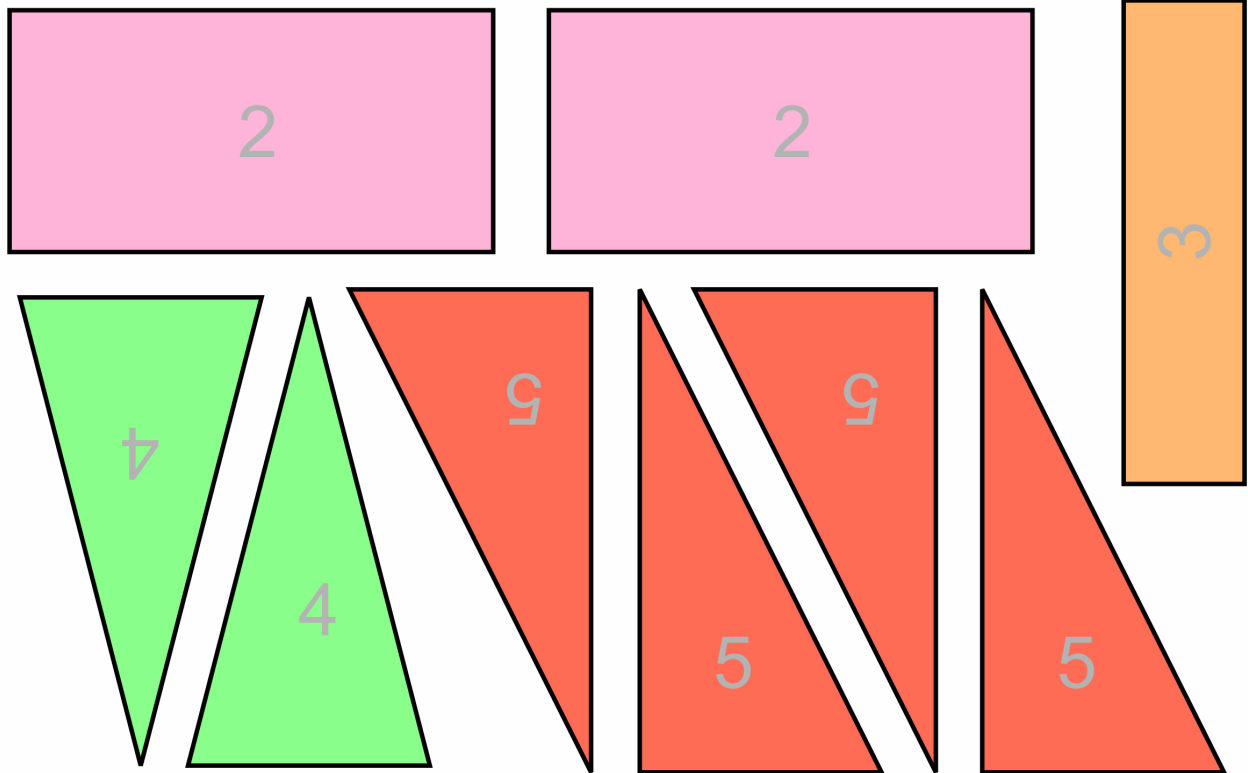


Playing with Shapes

Cut out the shapes. Hint: if you have the download version of this curriculum, print the page of cut-out shapes in landscape orientation, scaled at 140-150%, so it prints on two sheets of paper. All the shapes will then be much bigger.

1. Make a big triangle with the four yellow triangles (marked with 1).
2. Take all six of the yellow triangles (marked with 1). Put them together to get a six-sided shape (a *hexagon*).
3. Use the two pink rectangles (marked with 2) to make a square.
4. Use one pink rectangle (#2) and two blue squares (#7) to make a square.
5. Can you make a bigger square than the one you made in exercise 4? Use any pieces you choose.
6. Make a rectangle using two red triangles (#5).
7. Make a bigger rectangle using four red triangles (#5).
8. Put together two of the green triangles (#4) to get a four-sided shape. You can do this in several different ways!
9. Put together the two slim rectangles (#3) to make **a.** a rectangle; **b.** an L-shape; **c.** an eight-sided shape.
10. Put together the two purple shapes (#6) to make a six-sided shape (a hexagon). You can do this in several different ways!
11. Put together the two purple shapes (#6) to make a four-sided shape (a *quadrilateral*).
12. A challenge: put together the two purple shapes (#6) to make a five-sided shape (a *pentagon*).
13. Make your own pentagons (five-sided figures) using any of the shapes! Make several different ones.
14. Make your own hexagons (six-sided figures) using any of the shapes! Make several different ones.
15. Make interesting figures of your own using any of the shapes. Have fun!





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Refresh Your Memory



1. Divide (break up) the numbers into two parts.

7	8	9	10
5 and _____	1 and _____	4 and _____	3 and _____
6 and _____	4 and _____	8 and _____	9 and _____
1 and _____	5 and _____	2 and _____	6 and _____
2 and _____	7 and _____	1 and _____	5 and _____
4 and _____	2 and _____	3 and _____	2 and _____

2. Subtract. You can use the number pairs above.

a.	b.	c.	d.
$7 - 1 =$ _____	$8 - 3 =$ _____	$9 - 2 =$ _____	$10 - 3 =$ _____
$7 - 5 =$ _____	$8 - 6 =$ _____	$9 - 3 =$ _____	$10 - 8 =$ _____
$7 - 3 =$ _____	$8 - 2 =$ _____	$9 - 5 =$ _____	$10 - 5 =$ _____
$7 - 6 =$ _____	$8 - 7 =$ _____	$9 - 7 =$ _____	$10 - 6 =$ _____

3. Write a fact family for each picture.

<p>a. 9</p>  <p>_____ + _____ = _____</p> <p>_____ + _____ = _____</p> <p>_____ - _____ = _____</p> <p>_____ - _____ = _____</p>	<p>b. 7</p>  <p>_____ + _____ = _____</p> <p>_____ + _____ = _____</p> <p>_____ - _____ = _____</p> <p>_____ - _____ = _____</p>
--	---

4. Add or subtract.

a. $7 + 1 + 2 = \underline{\hspace{2cm}}$	b. $3 + 5 + 1 = \underline{\hspace{2cm}}$	c. $10 - 2 - 2 = \underline{\hspace{2cm}}$
$4 + 1 + 4 = \underline{\hspace{2cm}}$	$2 + 2 + 4 = \underline{\hspace{2cm}}$	$7 - 1 - 5 = \underline{\hspace{2cm}}$
$3 + 1 + 2 = \underline{\hspace{2cm}}$	$6 - 1 - 2 = \underline{\hspace{2cm}}$	$9 - 3 - 4 = \underline{\hspace{2cm}}$

5. Add and subtract. Start with the number in the bottom left corner and follow the arrows.

a. 2

b. 7

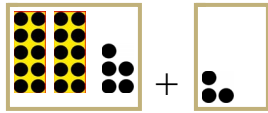
6. Count by tens. If you have forgotten how to do it, a 100-chart can help.

a. 10, 20, _____, _____, _____, _____, _____, _____
b. 24, 34, _____, _____, _____, _____, _____, _____
c. _____, _____, _____, 48, 58, _____, _____, _____

7. Add or subtract.

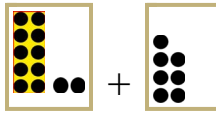
a.	b.	c.	d.
$20 + 6 = \underline{\hspace{2cm}}$	$20 + \underline{\hspace{2cm}} = 24$	$10 + 10 = \underline{\hspace{2cm}}$	$50 - 10 = \underline{\hspace{2cm}}$
$40 + 8 = \underline{\hspace{2cm}}$	$70 + \underline{\hspace{2cm}} = 78$	$32 + 10 = \underline{\hspace{2cm}}$	$66 - 10 = \underline{\hspace{2cm}}$
$50 + 2 = \underline{\hspace{2cm}}$	$50 + \underline{\hspace{2cm}} = 56$	$67 + 10 = \underline{\hspace{2cm}}$	$82 - 10 = \underline{\hspace{2cm}}$

Adding Without Regrouping



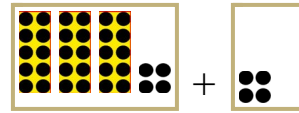
$$25 + 3 = 28$$

Add $5 + 3$ first.
The 2 tens do not change.



$$12 + 7 = 19$$

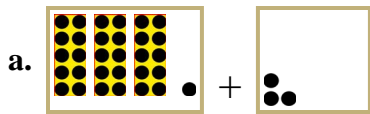
Add $2 + 7$ first.
The ten does not change.



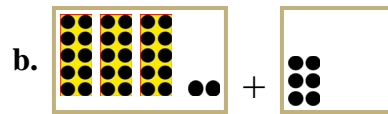
$$34 + 4 = 38$$

Add $4 + 4$ first.
The 3 tens do not change.

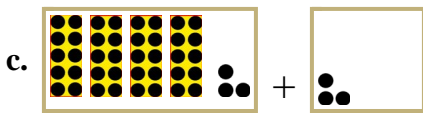
1. Write an addition sentence for each picture.



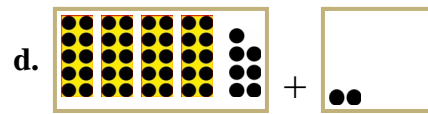
$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$



$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$



$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$



$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

2. Add. Compare the problems. The top problem helps you solve the bottom one!

a. $5 + 2 = \underline{\hspace{1cm}}$

$$35 + 2 = \underline{\hspace{1cm}}$$

b. $4 + 5 = \underline{\hspace{1cm}}$

$$64 + 5 = \underline{\hspace{1cm}}$$

c. $3 + 6 = \underline{\hspace{1cm}}$

$$93 + 6 = \underline{\hspace{1cm}}$$

3. Add. Below each problem, write a “helping” problem with numbers less than 10.

a. $52 + 7 = \underline{\hspace{1cm}}$

$$\underline{2} + \underline{7} = \underline{\hspace{1cm}}$$

b. $33 + 1 = \underline{\hspace{1cm}}$

$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

c. $11 + 5 = \underline{\hspace{1cm}}$

$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

4. The numbers are written in boxes! Add the ones in their own column.
Copy the number of tens to the answer line.

a. $35 + 3$		b. $12 + 6$		c. $57 + 1$		d. $64 + 3$	
tens	ones	tens	ones	tens	ones	tens	ones
3	5	1	2	5	7	6	4
+	↓	+	↓	+	↓	+	↓
3	8						

5. Now *you* write the numbers in the boxes. Add the ones in their own column.

a. $26 + 3$		b. $72 + 4$		c. $65 + 4$		d. $81 + 4$	
tens	ones	tens	ones	tens	ones	tens	ones
+	↓	+	↓	+	↓	+	↓

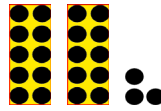
6. Add. Compare the problems.

a.	b.	c.	d.
$6 + 2 = \underline{\hspace{2cm}}$	$4 + 3 = \underline{\hspace{2cm}}$	$5 + 4 = \underline{\hspace{2cm}}$	$11 + 7 = \underline{\hspace{2cm}}$
$16 + 2 = \underline{\hspace{2cm}}$	$24 + 3 = \underline{\hspace{2cm}}$	$45 + 4 = \underline{\hspace{2cm}}$	$61 + 7 = \underline{\hspace{2cm}}$
$36 + 2 = \underline{\hspace{2cm}}$	$34 + 3 = \underline{\hspace{2cm}}$	$65 + 4 = \underline{\hspace{2cm}}$	$41 + 7 = \underline{\hspace{2cm}}$

7. Add three numbers.

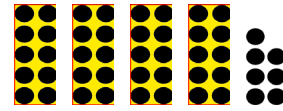
a.	b.	c.
$20 + 5 + 2 = \underline{\hspace{2cm}}$	$93 + 1 + 5 = \underline{\hspace{2cm}}$	$100 + 5 + 4 = \underline{\hspace{2cm}}$
$44 + 2 + 2 = \underline{\hspace{2cm}}$	$83 + 4 + 3 = \underline{\hspace{2cm}}$	$52 + 4 + 2 = \underline{\hspace{2cm}}$

Do you remember how to separate (“break up”) a number into its TENS and ONES?



$$23 = 20 + 3$$

tens ones



$$47 = 40 + 7$$

tens ones

8. Break the numbers into tens and ones or combine the tens and ones into numbers.

a.

$$18 = 10 + 8$$

$$25 = \underline{\quad} + \underline{\quad}$$

$$55 = \underline{\quad} + \underline{\quad}$$

b.

$$32 = \underline{\quad} + \underline{\quad}$$

$$95 = \underline{\quad} + \underline{\quad}$$

$$\underline{\quad} = 40 + 9$$

c.

$$\underline{\quad} = 60 + 6$$

$$\underline{\quad} = 9 + 80$$

$$\underline{\quad} = 8 + 70$$

9. Compare. Write $<$, $>$, or $=$.

a. $24 + 3$ $24 + 5$

c. $17 + 2$ $19 + 2$

e. 58 $8 + 51$

b. $83 + 5$ $85 + 3$

d. $36 + 4$ $46 + 4$

f. 66 $5 + 61$

Puzzle Corner

★ is a number we don't know—a mystery number! Your task is to *compare* without knowing the mystery number! For example, which is more, ★ + 2 or ★ + 7?

Write $<$ or $>$ in the boxes. Note: there is one comparison you **cannot** do without knowing the mystery number. Can you find it?

$$\star + 5 \quad \boxed{} \quad \star + 4$$

$$\star - 5 \quad \boxed{} \quad \star - 4$$

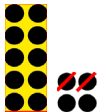
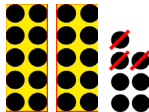
$$\star - 5 \quad \boxed{} \quad \star$$

$$\star + 2 \quad \boxed{} \quad \star + 7$$

$$\star - 5 \quad \boxed{} \quad \star - 6$$

$$\star + \star \quad \boxed{} \quad \star + 20$$

Subtracting Without Borrowing

 $14 - 2 = \underline{12}$ <p>“I can subtract $4 - 2 = 2$; the 10 stays the same.”</p>	 $27 - 3 = \underline{24}$ <p>“I can subtract $7 - 3 = 4$; the 20 stays the same.”</p>	<p>Think of the <i>ones digits</i> only. The tens do not change because we don't have to subtract from the tens.</p>
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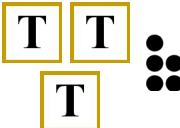
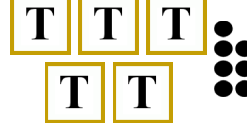
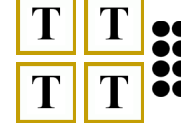
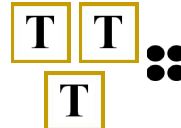
1. Subtract and compare. The top problem helps you solve the bottom one!

<p>a. $8 - 2 = \underline{6}$</p> <p>$28 - 2 = \underline{26}$</p>	<p>b. $7 - 6 = \underline{\quad}$</p> <p>$17 - 6 = \underline{\quad}$</p>	<p>c. $7 - 7 = \underline{\quad}$</p> <p>$67 - 7 = \underline{\quad}$</p>
<p>d. $6 - 6 = \underline{\quad}$</p> <p>$56 - 6 = \underline{\quad}$</p>	<p>e. $9 - 8 = \underline{\quad}$</p> <p>$49 - 8 = \underline{\quad}$</p>	<p>f. $5 - 2 = \underline{\quad}$</p> <p>$95 - 2 = \underline{\quad}$</p>

2. Subtract. Write a “helping problem” below that uses only numbers less than 10.

<p>a. $54 - 2 = \underline{\quad}$</p> <p>$4 - 2 = \underline{\quad}$</p>	<p>b. $76 - 2 = \underline{\quad}$</p> <p>$\underline{\quad} - \underline{\quad} = \underline{\quad}$</p>	<p>c. $88 - 4 = \underline{\quad}$</p> <p>$\underline{\quad} - \underline{\quad} = \underline{\quad}$</p>
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3. Subtract. Cross out dots. Each box marked with a “T” stands for a ten.

<p>a. </p> <p>$35 - 4 = \underline{\quad}$</p> <p>$35 - 3 = \underline{\quad}$</p> <p>$35 - 2 = \underline{\quad}$</p>	<p>b. </p> <p>$57 - 7 = \underline{\quad}$</p> <p>$57 - 5 = \underline{\quad}$</p> <p>$57 - 3 = \underline{\quad}$</p>	<p>c. </p> <p>$48 - 2 = \underline{\quad}$</p> <p>$48 - 4 = \underline{\quad}$</p> <p>$48 - 6 = \underline{\quad}$</p>	<p>d. </p> <p>$34 - 1 = \underline{\quad}$</p> <p>$34 - 2 = \underline{\quad}$</p> <p>$34 - 4 = \underline{\quad}$</p>
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Counting Dimes, Nickels, and Cents



front

back

This coin is called
a cent or a penny.
We write 1¢.



front

back

This coin is called a dime.
It is worth ten cents (10¢).

Count up to find how many cents there are in total:



Two dimes is 20¢.
Four pennies is 4¢.
The total is 24 cents.

1. Count and write the total amount in cents.

a.



_____ ¢

b.



_____ ¢

c.



_____ ¢

d.



_____ ¢

e.



_____ ¢

f.



_____ ¢

g.



_____ ¢