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Foreword

Math Mammoth Grade 1, International Version comprises a complete maths curriculum for the first grade mathematics studies. This curriculum is essentially the same as the U.S. version of Math Mammoth Grade 1, only customised for international use in a few aspects (listed below). The curriculum meets the Common Core Standards in the United States, but it may not perfectly align to the first grade standards in your country. However, you can probably find material for any missing topics in neighbouring grades.

The International version of Math Mammoth differs from the U.S. version in these aspects:

- The currency used in the money chapters in grades 1-3 is the Australian dollar. (The download version of this curriculum for grades 1-3 include the chapter on money for European, South African, Canadian, US, and British currencies.)
- The curriculum teaches the metric measurement units. Imperial units, such as inches and pounds, are not used.
- The spelling conforms to British international standards.
- Paper size is A4.

The four main areas of study for first grade are:

1. Learning the concepts of addition and subtraction, and strategies for remembering addition and subtraction facts (chapters 1-2 and chapter 4);
2. Developing understanding of whole number relationships and place value up to 100 (chapter 3 and chapter 7);
3. Developing the concept that measuring is a process of repeating basic units of length or some other measure (chapter 6); and
4. Reasoning about attributes of geometric shapes, such as the number of sides and the number of corners, and composing and decomposing geometric shapes (chapter 6).

Additional topics we study in the first grade are telling time to the half hour (chapter 5) and counting coins (chapter 8).

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

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

I wish you success in teaching maths!

Maria Miller, the author

User Guide

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

Basic principles in using Math Mammoth Complete Curriculum

Math Mammoth is mastery-based, which means it concentrates on a few major topics at a time, in order to study them in depth. The two books (parts A and B) are like a “framework”, but you still have a lot of liberty in planning your child’s studies. You can even use it in a *spiral* manner, if you prefer. Simply have your student study in 2-3 chapters simultaneously. In second grade, the addition and subtraction topics are best studied in the order they are presented, but feel free to go through the chapters on geometry, measurement, clock and money in any order you like.

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

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

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

- There are a lot of **videos** matched to the curriculum available at <https://www.mathmammoth.com/videos/>. There isn’t a video for every lesson, but there are dozens of videos for each grade level. You can simply have the author teach your child or student!
- Don’t automatically assign all the exercises. Use your judgement, trying to assign just enough for your student’s needs. You can use the skipped exercises later for revision. For most students, I recommend to start out by assigning about half of the available exercises. Adjust as necessary.
- Each chapter introduction includes a **link list to various free online games** and activities, matched to the topics of that chapter. These games can be used to supplement the lessons, for learning maths facts or just for some fun.
- The student books contain some **mixed revision lessons**, and the curriculum also provides you with additional **cumulative revision lessons**.
- There is a **chapter test** for each chapter of the curriculum, and a comprehensive end-of-year test.
- The **worksheet maker** allows you to make additional worksheets for most calculation-type topics in the curriculum. You will need Internet access to be able to use it. In the digital version, the worksheet maker is found in the folder titled “For revision”. In the print version, a link to it is found in the introduction just before the cumulative revisions.
- You can use the free online exercises at <https://www.mathmammoth.com/practice/>. This is an expanding section of the site, so check often to see what new topics we are adding to it!
- Some grade levels have **cut-outs**, such as to make fraction manipulatives or geometric solids.
- And of course there are answer keys to everything.

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

How to get started

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

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

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

Pacing the curriculum

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

The 2-page lessons are intended for one day. The lessons that are 3-4 pages can be covered in two days.

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

The table below lists how many pages there are for the student to finish in this particular grade level, and gives you a guideline for how many pages per day to finish, assuming a 175-day (35-week) school year.

Example:

Worktext 1-A	
Chapter 1	27 days
Chapter 2	21 days
Chapter 3	19 days
TOTAL	67 days

Worktext 1-B	
Chapter 4	14 days
Chapter 5	9 days
Chapter 6	15 days
Chapter 7	25 days
Chapter 8	9 days
TOTAL	72 days

Grade level	School days	Days for tests and revisions	Lesson pages	Days for the student book	Pages to study per day	Pages to study per week
1-A	82	6	121	76	1.6	8
1-B	93	10	127	83	1.5	7.7
Grade 1 total	175	16	248	159	1.6	7.8

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

Grade level	School days	Days for tests and revisions	Lesson pages	Days for the student book	Pages to study per day	Pages to study per week
1-A			121			
1-B			128			
Grade 1 total			249			

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

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

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

Working space, the usage of additional paper and mental maths

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

Some exercises don't have any working space, but just an empty line for the answer (e.g. $200 + \underline{\quad} = 1000$). Typically, I have intended that such exercises to be done using MENTAL MATHS.

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

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

Using tests

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

In the digital version of the curriculum, the tests are provided both as PDF files and as html files. Normally, you would use the PDF files. The html files are included so you can edit them (in a word processor such as Word or LibreOffice), in case you want your student to take the test a second time. Remember to save the edited file under a different file name, or you will lose the original.

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

Using the cumulative revisions and the worksheet maker

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

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

The cumulative revisions are optional; use them as needed. They are named indicating which chapters of the main curriculum the problems in the revision come from. For example, “Cumulative Revision, Chapter 4” includes problems that cover topics from chapters 1-4.

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

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

Concerning challenging word problems and puzzles

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

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

Math Mammoth curriculum does contain a lot of word problems. Even so, the problems I have created are usually tied to a specific concept or concepts. I feel students can benefit from solving problems and puzzles that require them to think “out of the box” or are just different from the ones I have written.

I recommend Math Stars problem-solving newsletters (free) as a main resource for challenging problems: <https://www.homeschoolmath.net/teaching/math-stars.php>

I have also compiled a list of other resources for problem solving practice, which you can access at this link: <https://l.mathmammoth.com/challengingproblems>

Another idea: search online for “brain puzzles for kids,” “logic puzzles for kids” or “brain teasers for kids.”

Frequently asked questions and contacting us

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

Additionally, you can contact us using the contact form at the Math Mammoth.com website.

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

Chapter 0: Grade K Maths Revision

Introduction

This chapter is optional and can be used to revise the most important concepts of kindergarten maths:

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

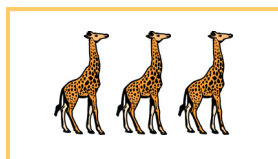
Pacing Suggestion for Chapter 0

The Lessons in Chapter 0	page	span	suggested pacing	your pacing
Equal Amounts: Same and Different	13	1 page	1 day	
Writing Numbers	14	2 pages	1 day	
Counting	16	2 pages	1 day	
Position Words, Colours, and Shapes	18	2 pages	1 day	
Patterns	20	1 page	1 day	
TOTALS		8 pages	5 days	

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Counting

1. Count. Write the number in the box.



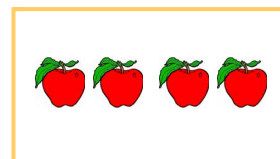
a.



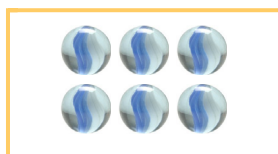
b.



c.



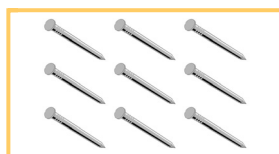
d.



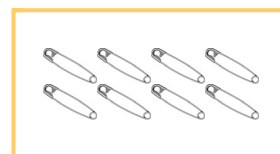
e.



f.

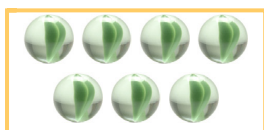


g.

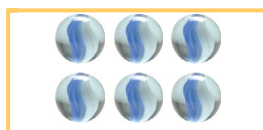


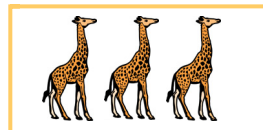
h.

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

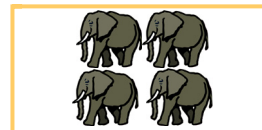


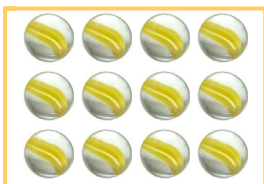
a.



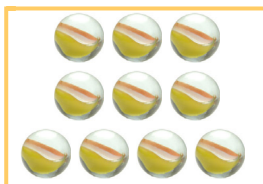


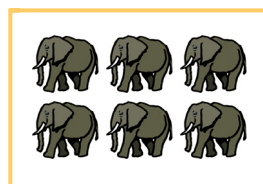
b.



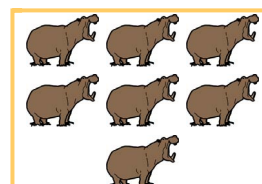


c.

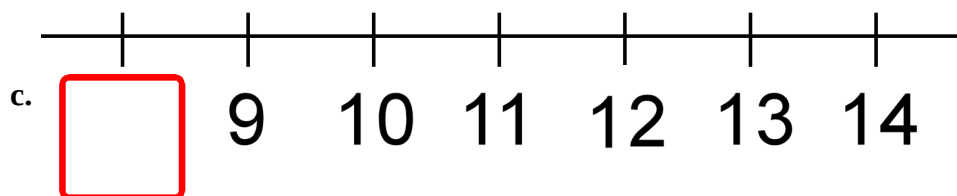
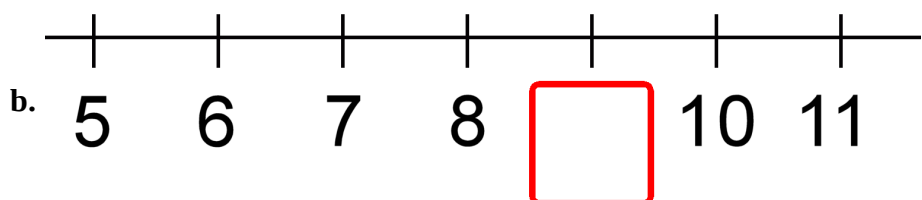
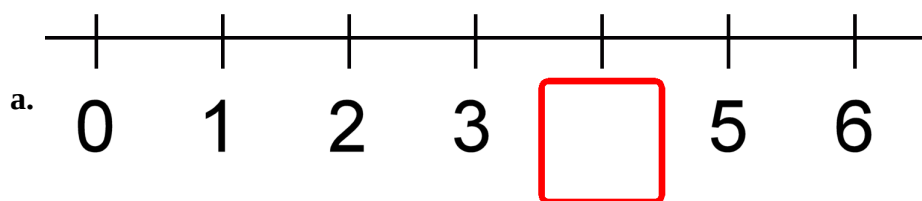




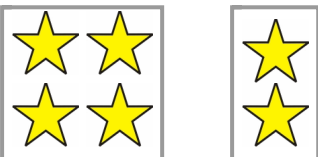
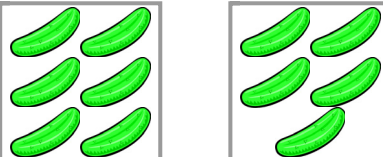
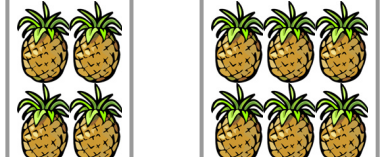
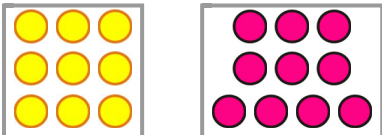
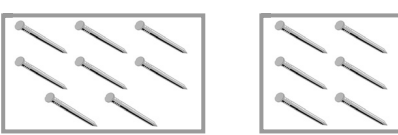
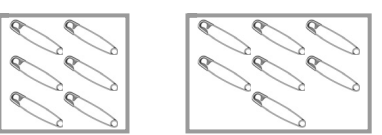
d.



3. Write the missing number below the number line.

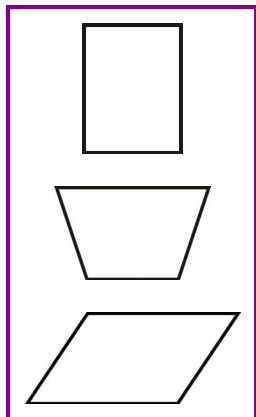


4. Circle the group that has more things. Then count them ALL (both groups). Write the number in the box below.

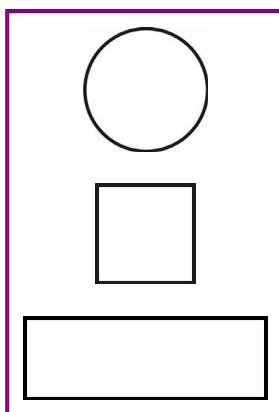
 a.	 b.	 c.
 d.	 e.	 f.

Position Words, Colours and Shapes

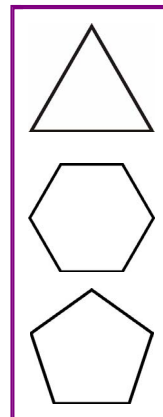
1. a. Colour the top shape RED.



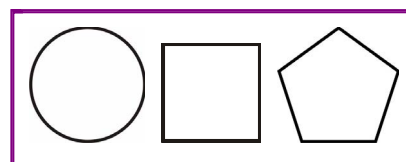
- b. Colour the bottom shape BLUE.



- c. Colour the middle shape YELLOW.



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



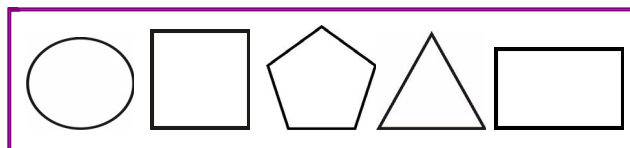
- b. Colour the shape in the middle BLUE.



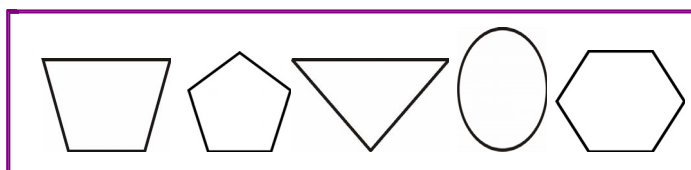
- c. Colour the shape on the left YELLOW.



- d. Colour the two shapes on the right ORANGE.



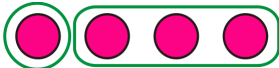
- e. Colour the two shapes on the left PURPLE.



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Two Groups and a Total

1. Make two groups.

a. 4  1 and 3	b. 4  2 and 2	c. 4  3 and 1
d. 5  3 and 2	e. 5  2 and 3	f. 5  1 and 4

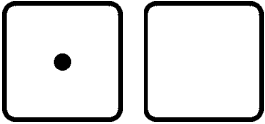
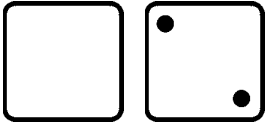
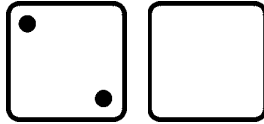
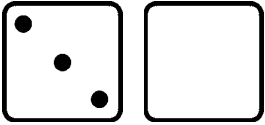
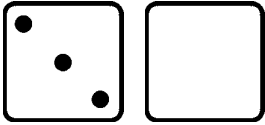
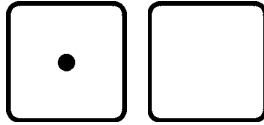
2. Make two groups. Write how many are in the second group.

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

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.

a. 3 _____ and _____	b. 5 _____ and _____	c. 4 _____ and _____
d. 2 _____ and _____	e. 6 _____ and _____	f. 8 _____ and _____

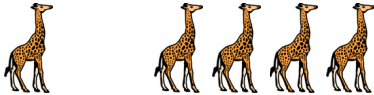
4. The number at the top is the total. Draw the missing dots on the face of the blank dice.
Write on the lines how many dots are on the face of each dice.

a. 3  _____ and _____	b. 6  _____ and _____	c. 5  _____ and _____
d. 4  _____ and _____	e. 6  _____ and _____	f. 5  _____ and _____



2 and 2 4

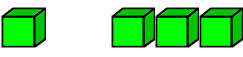
“Two and two makes four.”



1 and 4 5

“One and four makes five.”

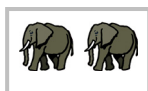
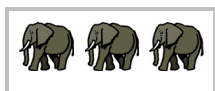
5. Write how many are in each group. Write the total in the box.

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

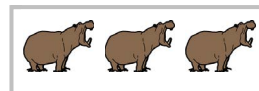
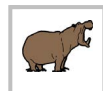
6. Draw circles for each number. Write the total in the box.

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

Learn the Symbols + and =



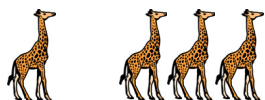
3 + 2 = 5
THREE plus TWO equals FIVE



1 + 3 = 4
ONE plus THREE equals FOUR

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

a.



1 + 3 =

b.



 + =

c.



 + =

d.



 + =

e.



 + =

f.



 + =

g.



 + =

h.



 + =

i.



 + =

j.



 + =

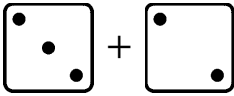
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Missing Items

Something is missing from the addition. The TOTAL is not missing. The total is 5. How many are in the second group? That is what is missing! There should be a total of 5 dots. Draw 4 on the face of the second dice.	5 • + 1 + _____
There should be a total of 4 dots. The face of the second dice has two. There are none on the face of the first dice, so you need to draw them. Read: “2 plus what number makes 4?” or, “2 and how many more makes 4?” or, “What number and 2 makes 4?”	4 + • • _____ + 2

1. Complete the addition. Draw the missing dots. The total is on top.

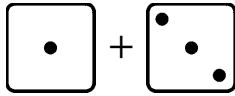
3 • + a. 1 + _____	3 • • + b. 2 + _____	5 + •• •• c. _____ + 4
5 • • • + d. 3 + _____	5 + • • e. _____ + 2	4 + • • • f. _____ + 3
5 •• • •• + g. 5 + _____	4 + • h. _____ + 1	4 + • • i. _____ + 2



 $3 + \underline{\quad} = 5$

The **TOTAL** is now written after the equal sign “=”.

The answer is $3 + \underline{2} = 5$

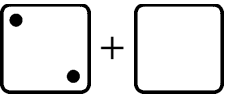
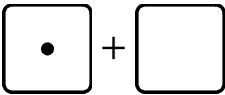
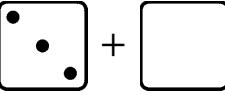
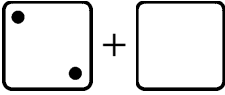
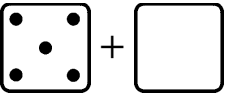
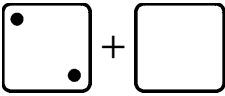
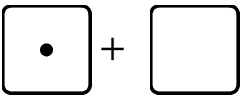
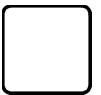
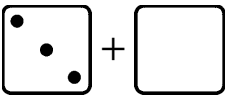


 $\underline{\quad} + 3 = 4$

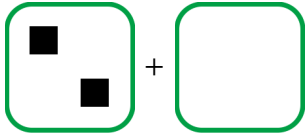
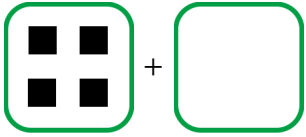
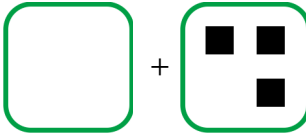
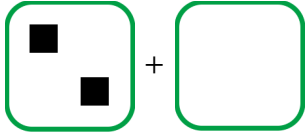
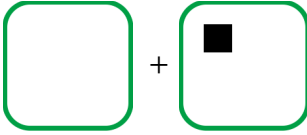
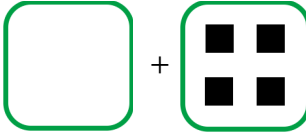
See the **TOTAL** written after the equal sign “=”.

The answer is $\underline{1} + 3 = 4$

2. Draw more dots to show the missing number. Write the missing number.

a.  +  $2 + \underline{\quad} = 4$	b.  +  $1 + \underline{\quad} = 1$	c.  +  $\underline{\quad} + 1 = 5$
d.  +  $3 + \underline{\quad} = 5$	e.  +  $\underline{\quad} + 1 = 4$	f.  +  $2 + \underline{\quad} = 3$
g.  +  $5 + \underline{\quad} = 5$	h.  +  $\underline{\quad} + 1 = 3$	i.  +  $2 + \underline{\quad} = 5$
j.  +  $1 + \underline{\quad} = 5$	k.  +  $\underline{\quad} + 2 = 2$	l.  +  $3 + \underline{\quad} = 4$

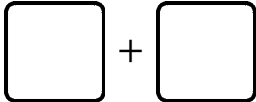
3. Draw squares in the empty box for the missing number. Read the problems aloud:
 “2 plus how many makes 4?”

 a. $2 + \underline{\quad\quad} = 4$	 b. $4 + \underline{\quad\quad} = 4$	 c. $\underline{\quad\quad} + 3 = 4$
 d. $2 + \underline{\quad\quad} = 5$	 e. $\underline{\quad\quad} + 1 = 3$	 f. $\underline{\quad\quad} + 4 = 5$

There are no dots on the face of either dice.

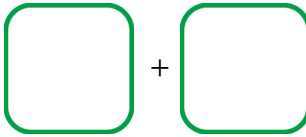
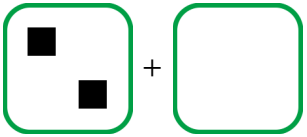
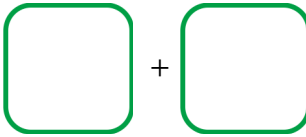
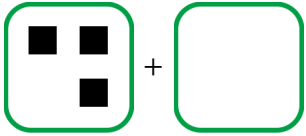
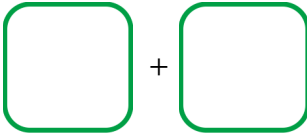
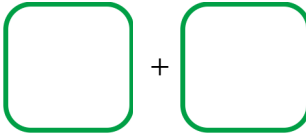
The face of the first dice is missing its dots. The face of the second is *supposed* to have none, since there is a zero below it.

Draw 4 dots on the face of the first dice, because $\underline{4} + 0 = \underline{4}$.

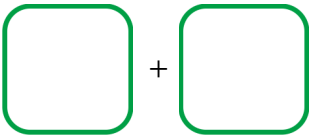
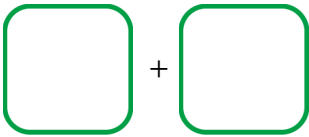
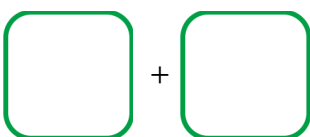
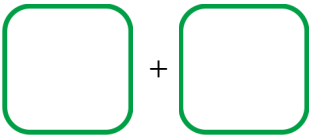
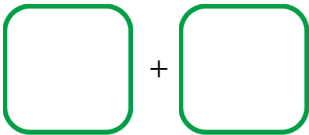
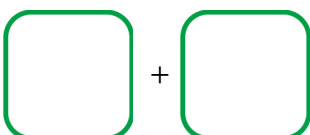
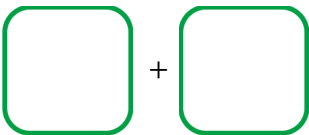
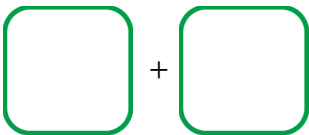
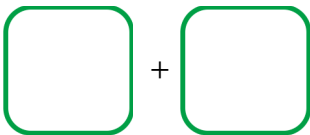


$$\underline{\quad\quad} + 0 = \underline{4}$$

4. Draw squares in the boxes for the missing numbers. Notice that some groups are supposed to have zero dots.

 a. $0 + \underline{\quad\quad} = 4$	 b. $2 + \underline{\quad\quad} = 2$	 c. $\underline{\quad\quad} + 0 = 3$
 d. $3 + \underline{\quad\quad} = 3$	 e. $\underline{\quad\quad} + 0 = 2$	 f. $0 + \underline{\quad\quad} = 1$

5. Draw dots to illustrate each addition problem. Find what number is missing.

 a. $4 + \underline{\hspace{2cm}} = 5$	 b. $1 + \underline{\hspace{2cm}} = 2$	 c. $\underline{\hspace{2cm}} + 3 = 5$
 d. $3 + \underline{\hspace{2cm}} = 4$	 e. $2 + \underline{\hspace{2cm}} = 3$	 f. $\underline{\hspace{2cm}} + 2 = 4$
 g. $1 + \underline{\hspace{2cm}} = 5$	 h. $\underline{\hspace{2cm}} + 1 = 4$	 i. $3 + \underline{\hspace{2cm}} = 3$

6. Solve. Now, the missing number goes inside the shape. You can draw dots to help you.
Remember, the number after the “=” sign is the total.

a. $2 + \boxed{\hspace{2cm}} = 5$	b. $\boxed{\hspace{2cm}} + 2 = 4$	c. $\boxed{\hspace{2cm}} + 1 = 3$
d. $\boxed{\hspace{2cm}} + 3 = 3$	e. $3 + \boxed{\hspace{2cm}} = 5$	f. $0 + \boxed{\hspace{2cm}} = 2$
g. $3 + \boxed{\hspace{2cm}} = 4$	h. $\boxed{\hspace{2cm}} + 2 = 4$	i. $\boxed{\hspace{2cm}} + 1 = 5$

7. Practise “normal” addition.

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

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

b. $4 + 0 = \underline{\hspace{2cm}}$

$3 + 1 = \underline{\hspace{2cm}}$

c. $1 + 4 = \underline{\hspace{2cm}}$

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

d. $2 + 3 = \underline{\hspace{2cm}}$

$1 + 4 = \underline{\hspace{2cm}}$

e. $0 + 5 = \underline{\hspace{2cm}}$

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

f. $3 + 2 = \underline{\hspace{2cm}}$

$4 + 1 = \underline{\hspace{2cm}}$

8. Find the missing number. The marbles illustrate the total. Notice the patterns!



$0 + \underline{\hspace{2cm}} = 3$

$1 + \underline{\hspace{2cm}} = 3$

$2 + \underline{\hspace{2cm}} = 3$

$3 + \underline{\hspace{2cm}} = 3$



$0 + \underline{\hspace{2cm}} = 4$

$1 + \underline{\hspace{2cm}} = 4$

$2 + \underline{\hspace{2cm}} = 4$

$3 + \underline{\hspace{2cm}} = 4$

$4 + \underline{\hspace{2cm}} = 4$



$0 + \underline{\hspace{2cm}} = 5$

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

$2 + \underline{\hspace{2cm}} = 5$

$3 + \underline{\hspace{2cm}} = 5$

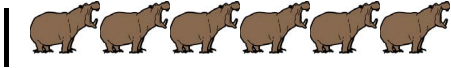
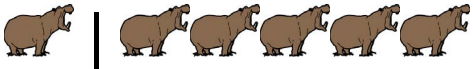
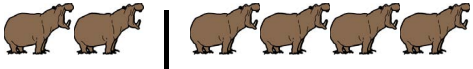
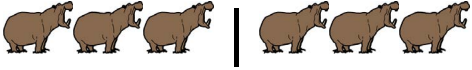
$4 + \underline{\hspace{2cm}} = 5$

$5 + \underline{\hspace{2cm}} = 5$

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Sums with 6

1. Here are some different ways to group six hippos into two groups. Write the addition sentences.

 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	 _____ + _____ = _____
 _____ + _____ = _____	

2. Play “6 Out” *and/or* “Some Went Hiding” with 6 objects (see the introduction).

3. **Drill.** Don't write the answers but just solve them in your head.

$1 + \square = 6$

$4 + \square = 6$

$\square + 2 = 6$

$\square + 3 = 6$

$2 + \square = 6$

$3 + \square = 6$

$\square + 0 = 6$

$\square + 1 = 6$

$6 + \square = 6$

$5 + \square = 6$

$\square + 4 = 6$

$\square + 5 = 6$

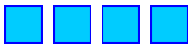
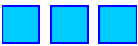
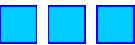
4. Add the numbers and write the total on the line.

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

b. $2 + 3 = \underline{\hspace{2cm}}$

c. $4 + 2 = \underline{\hspace{2cm}}$

5. Draw more boxes to illustrate the missing number and write it on the line.

a.  2 + _____ = 6	b.  2 + _____ = 5	c.  4 + _____ = 6
d.  3 + _____ = 6	e.  1 + _____ = 6	f.  5 + _____ = 6
g.  1 + _____ = 5	h. 0 + _____ = 6	i.  3 + _____ = 5

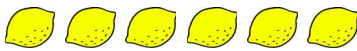
6. Larry and Emily share 5 cucumbers and 6 lemons in different ways. Find how many Emily gets. For the number shown, you can cover the cucumbers or lemons with your hand to see how many Emily gets.

a. 5




Larry gets:	Emily gets:
2	
1	
5	
3	
0	
4	

b. 6




Larry gets:	Emily gets:
1	
4	
5	
0	
2	
3	

7. Add.

2 + 3 = _____

4 + 1 = _____

3 + 3 = _____

4 + 2 = _____

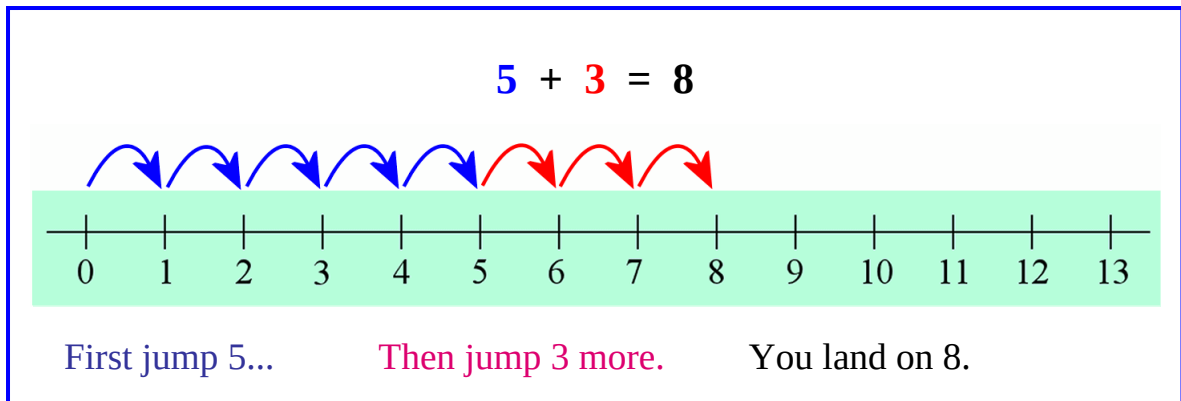
1 + 3 = _____

1 + 5 = _____

2 + 2 = _____

2 + 4 = _____

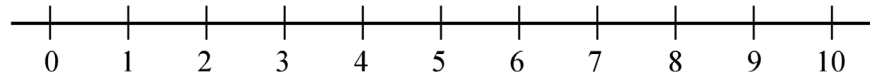
Adding on a Number Line



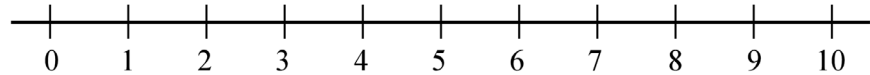
1. Draw the jumps to illustrate the addition and find the answer.

You can use a different colour for each number when you draw the jumps.

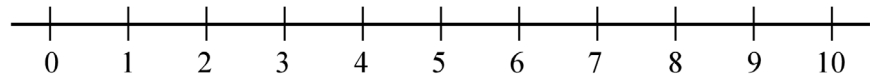
a. $5 + 2 =$ _____



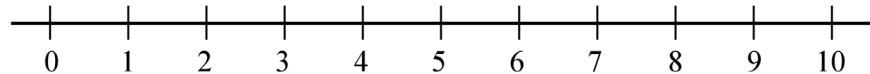
b. $4 + 1 =$ _____



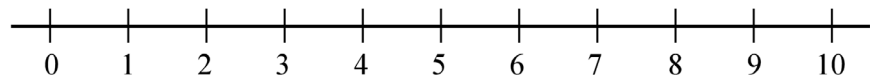
c. $6 + 3 =$ _____



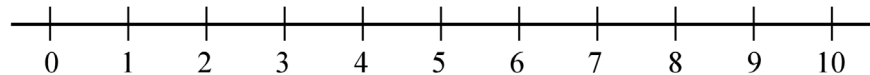
d. $9 + 1 =$ _____



e. $7 + 3 =$ _____



f. $4 + 3 =$ _____

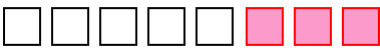
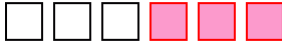


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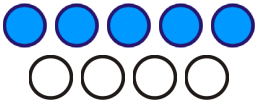
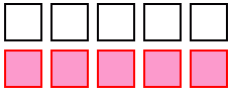
Subtraction and Addition in the Same Picture

How many coloured circles? How many white ones?  <u>4</u> + <u>6</u> = 10	 <u>3</u> + <u>4</u> = 7
Cover the coloured circles. Write a subtraction sentence.  10 - <u>4</u> = <u>6</u>	Cover the coloured circles.  7 - <u>3</u> = <u>4</u>

1. Make an addition sentence and a subtraction sentence from the same picture.

a.  _____ + _____ = _____ 7 - _____ = _____	b.  _____ + _____ = _____ 6 - _____ = _____
c.  _____ + _____ = _____ 5 - _____ = _____	d.  _____ + _____ = _____ 6 - _____ = _____
e.  _____ + _____ = _____ 8 - _____ = _____	f.  _____ + _____ = _____ 6 - _____ = _____

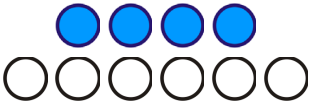
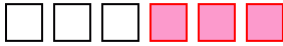
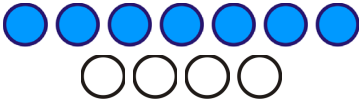
2. Make an addition sentence and a subtraction sentence for the same picture.

a.  _____ + _____ = _____ _____ - _____ = _____	b.  _____ + _____ = _____ _____ - _____ = _____
c.  _____ + _____ = _____ _____ - _____ = _____	d.  _____ + _____ = _____ _____ - _____ = _____

3. In each problem, draw circles and then colour them to fit the addition sentence.
Then cover the **COLOURED** circles and make a subtraction sentence.

a. $7 + 1 =$ _____ _____ - _____ = _____	b. $6 + 3 =$ _____ _____ - _____ = _____
c. $2 + 3 =$ _____ _____ - _____ = _____	d. $2 + 5 =$ _____ _____ - _____ = _____
e. $7 + 4 =$ _____ _____ - _____ = _____	f. $3 + 3 =$ _____ _____ - _____ = _____

4. Cover the coloured objects, and write a subtraction sentence to fit the picture.

a.  _____ - _____ = _____	b.  _____ - _____ = _____
c.  _____ - _____ = _____	d.  _____ - _____ = _____
e.  _____ - _____ = _____	f.  _____ - _____ = _____
g.  _____ - _____ = _____	h.  _____ - _____ = _____

5. In each problem, draw some circles and colour some circles to fit the addition sentence. Then cover the **COLOURED** circles and make a subtraction sentence.

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

6. Draw circles to fit the subtraction sentence. Write an addition sentence, too.

a. $9 - 4 = \underline{\hspace{2cm}}$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	b. $10 - 5 = \underline{\hspace{2cm}}$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
c. $8 - 5 = \underline{\hspace{2cm}}$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	d. $8 - 4 = \underline{\hspace{2cm}}$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
e. $7 - 4 = \underline{\hspace{2cm}}$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	f. $9 - 8 = \underline{\hspace{2cm}}$ $\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Puzzle Corner

Subtract or add. Do not write the answers; just solve them in your head. Then compare, and write $<$, $>$, or $=$.

$3 \square 3 - 1$	$6 + 5 \square 6$	$10 \square 10 - 1$
$9 - 7 \square 8 - 7$	$6 - 4 \square 2 + 3$	$8 - 5 \square 5 + 3$
$5 + 2 \square 8 + 2$	$10 - 1 \square 10 - 3$	$7 - 4 \square 8 - 5$
$10 - 2 \square 8 - 2$	$10 + 0 \square 10 - 0$	$8 - 1 \square 8 + 1$

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Two Parts — One Total

There are ten marbles. Some of them are blue and seven are yellow. How many are blue? You can write an addition sentence. You can ALSO write a subtraction sentence, even though nothing is taken away.	 $\underline{\quad\quad} + 7 = 10$ $10 - 7 = \underline{\quad\quad}$ Cover part of the total (the yellow marbles), and you will see the other part (the blue marbles).
There are five blue marbles and some white marbles in a bag. There is a total of nine marbles. How many are white? Draw the marbles. Write an addition sentence AND a subtraction sentence.	$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$ $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$

1. Solve the word problems. Write an addition sentence AND a subtraction sentence.

a. Mother put some blue and some red flowers in a vase. Jen counted five red ones and a total of ten. How many of the flowers are blue?	$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$ $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$
b. There are nine children on a team, and four of them are boys. How many are girls?	$\underline{\quad\quad} + \underline{\quad\quad} = \underline{\quad\quad}$ $\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$

- c. John has ten socks in his basket. Eight of them are white, and the rest are black.
How many are black?

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

$$\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$$

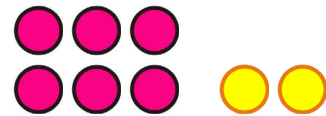
- d. Gloria saw eight chairs on the lawn, and two had blown over.
How many were still standing upright?

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

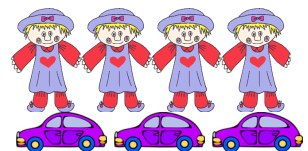
$$\underline{\quad\quad} - \underline{\quad\quad} = \underline{\quad\quad}$$

2. For each picture, make a word problem that is solved by subtraction.

a.



b.



3. Write an addition sentence for the pictures.

 a. _____ + _____ + _____ = _____	 b. _____ + _____ + _____ = _____
 c. _____ + _____ + _____ = _____	 d. _____ + _____ + _____ = _____

4. Draw the missing marbles to match the addition sentence.

 a. $3 + 2 + \underline{\hspace{1cm}} = 8$	 b. $1 + 5 + \underline{\hspace{1cm}} = 10$
--	--

5. Draw a picture to solve these problems.

a. Tanya had some red, some blue, and some yellow roses in a vase. Two of the roses were blue, and two were red. If she had a total of ten roses, how many of them were yellow?

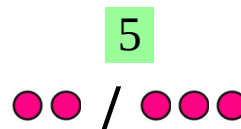
b. Seven birds sat in a tree. One of them was black, two were blue, and the rest were brown. How many were brown?

c. Bonnie has two long pencils and two medium-sized ones. The rest of her pencils are short. If she owns nine pencils in all, how many of her pencils are short?

Fact Families

Two addition facts and two subtraction facts form a fact family if they use the same three numbers.

For example, from 5, 3, and 2 we get the fact family on the right:



$$2 + 3 = 5 \quad 5 - 3 = 2$$

$$3 + 2 = 5 \quad 5 - 2 = 3$$

1. Write the fact families that match the pictures.

a. 6



$$1 + 5 = 6$$

$$5 + 1 = 6$$

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

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

b. 8



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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

c. 9



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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

d. 10



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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

2. Draw circles and write four *different* fact families for which the sum is 7.

a. 7 / _____ + _____ = _____ _____ + _____ = _____ _____ - _____ = _____ _____ - _____ = _____	b. 7 / _____ + _____ = _____ _____ + _____ = _____ _____ - _____ = _____ _____ - _____ = _____
c. 7 / _____ + _____ = _____ _____ + _____ = _____ _____ - _____ = _____ _____ - _____ = _____	d. 7 / _____ + _____ = _____ _____ + _____ = _____ _____ - _____ = _____ _____ - _____ = _____

3. Erica and Daniel solved some maths problems that had missing (unknown) numbers. Play math teacher. Check their work and correct any mistakes that they made.

Erica: a. $8 - 4 =$ 4 b. 6 $- 4 = 1$ c. $5 -$ 2 $= 2$	Daniel: d. 3 $- 4 = 1$ e. $10 - 8 =$ 1 f. $8 -$ 7 $= 1$
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4. Make the four facts for the given numbers.

a. Numbers: 5, 3, 2

$$2 + 3 = 5$$

$$3 + 2 = 5$$

$$5 - 3 = 2$$

$$5 - 2 = 3$$

b. Numbers: 9, 4, 5

$$4 + 5 = 9$$

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

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

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

c. Numbers: 4, 0, 4

$$4 + 0 = 4$$

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

$$4 - 0 = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

d. Numbers: 10, 3, 7

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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

e. Numbers: 10, , 8

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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

f. Numbers: 6, 0,

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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

Sometimes the two addition facts are the same. When that happens, the two subtraction facts will also be the same.

For example, with 8, 4, and 4, we only get one addition fact and one subtraction fact.

$$4 + 4 = 8$$

$$8 - 4 = 4$$

$$(4 + 4 = 8)$$

$$(8 - 4 = 4)$$

5. Write the fact families.

a. Numbers: 10, 5, 5

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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

b. Numbers: 9, 1, 8

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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

c. Numbers: 6, 3, _____

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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

d. Numbers: 7, 1, _____

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

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

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} - \underline{\quad} = \underline{\quad}$$

Puzzle Corner

For each problem, write the number that the $\bigcirc$, $\square$ or $\triangle$ represents.

$$\bigcirc - 4 = 5$$

$$5 - \square = 4$$

$$\triangle + 4 = 5$$

$$\bigcirc - 2 = 3$$

$$7 - \square = 1$$

$$\triangle + 2 = 3$$

$$\bigcirc - 7 = 1$$

$$10 - \square = 5$$

$$\triangle + 7 = 10$$