math MAMMOTH

Grade 3-B Worktext
International Version (Canada)

Light Blue Series

- **P**lace value with thousands
- **G**eometry
- **M**easuring
- **D**ivision
- **F**ractions

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

By Maria Miller

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Foreword

Math Mammoth Grade International Version 3-A and Grade 3-B worktexts comprise a complete maths curriculum for the third grade mathematics studies.

This curriculum is essentially the same as the version of *Math Mammoth Grade 3* sold in the United States (US version), only customised for international use. The US version is aligned to the "Common Core" Standards, so it may not be properly aligned to the third grade standards in your country. However, you can probably find material for any missing topics in neighbouring grades. For example, let's say multiplication tables are studied in grade or year 4 in your country. They are not found in Math Mammoth Grade 4. Instead, you will need to use Math Mammoth Grade 3-A to study them.

The International version of Math Mammoth differs from the US version in these aspects:

- The currency used in the money chapters in grades 1-3 is the Canadian dollar. (The download version of this curriculum for grades 1-3 includes the chapter on money for Australian, British, European, New Zealand, South African, and US 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.
- The paper size is Letter.

Third grade is a time for learning and mastering two (mostly new) operations: multiplication and division within 100. The student also deepens his understanding of addition and subtraction, and uses those in many different contexts, such as with money, time, and geometry.

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

1. Students develop an understanding of multiplication and division of whole numbers through problems involving equal-sized groups, arrays, and area models. They learn the relationship between multiplication and division, and solve many word problems involving multiplication and division (chapters 2, 3, and 9).

2. Students develop an understanding of fractions, beginning with unit fractions. They compare fractions by using visual models and strategies based on noticing equal numerators or denominators (chapter 10).

3. Students learn the concepts of area and perimeter. They relate area to multiplication and to addition, recognise perimeter as a linear measure (in contrast with area), and solve problems involving area and perimeter (chapter 7).

4. Students fluently add and subtract within 1 000, both mentally and in columns. They also learn to add and subtract 4-digit numbers, and use addition and subtraction in problem solving in many contexts, such as with money, time, and geometry.

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

This book, 3-B, covers place value and 4-digit numbers (chapter 6), geometry (chapter 7), measuring (chapter 8), division (chapter 9), and fractions (chapter 10). The rest of the topics are covered in the 3-A student worktext.

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

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- 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. In grade 3, it is best to study the first three chapters in the order they are presented, and early during the school year (so that children will learn multiplication before most of the other chapters). Then, it is also necessary to study place value before the chapters on geometry and measurement. Other than that, feel free to go through the chapters in most any order you like.

  Using that as a guideline, you can change the order of the topics somewhat, or have your child study in several of the chapters simultaneously, such as studying measuring and division at the same time. Jumping into another topic (chapter) "out of order" is especially advisable if your child is either "stuck" on 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 individualise 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 revision. For most children, I recommend to start out by assigning about half of the available exercises. Adjust as necessary.

- For revision, the curriculum includes a worksheet maker (Internet access required), mixed revision lessons, additional cumulative revision lessons, and the word problems continually require usage of past concepts. Please see more information about revision (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 your maths teaching!

Maria Miller, the author

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Chapter 6: Place Value with Thousands
Introduction

This chapter of *Math Mammoth Grade 3* covers 4-digit numbers (numbers with thousands), and adding and subtracting them. We also study rounding and estimating, which are very important skills for everyday life.

First, children learn 4-digit numbers, place value—breaking up numbers such as 3 498 into thousands, hundreds, tens and ones—and comparing 4-digit numbers. Next, they practise some mental addition and subtraction with 4-digit numbers. The lesson stresses the similarities between adding and subtracting 4-digit numbers and adding and subtracting smaller numbers. Practising mental maths also helps to build number sense.

We also study regrouping in addition and subtraction, using 4-digit numbers. If you purchased the download version, you can make more worksheets for addition and subtraction using the accompanying worksheet maker.

The last major topics in this chapter are rounding numbers to the nearest hundred and estimating. Students also get to do some more word problems in one lesson.

The Lessons

	page	span
Thousands	9	*4 pages*
Four-Digit Numbers and Place Value	13	*4 pages*
Which Number is Greater?	17	*2 pages*
Mental Adding and Subtracting	19	*4 pages*
Add 4-Digit Numbers with Regrouping	23	*2 pages*
Subtract 4-Digit Numbers with Regrouping	25	*4 pages*
Rounding to the Nearest Hundred	29	*3 pages*
Estimating	32	*3 pages*
Word Problems	35	*3 pages*
Mixed Revision, Chapter 6	38	*2 pages*
Revision, Chapter 6	40	*2 pages*

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Helpful Resources on the Internet

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

https://links.mathmammoth.com/gr3ch6

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Four-Digit Numbers and Place Value

Here the numbers 2 467, 1 090 and 5 602 are written as a *sum* of their different place values.

It is like writing each part of the number out in full: the thousands, the hundreds, the tens, and the ones. **Notice the zeros!** When there are *no* hundreds (or tens or ones), write a zero.

thou-sands	hund-reds	tens	ones
2	4	6	7

2 000 + 400 + 60 + 7

thou-sands	hund-reds	tens	ones
1	0	9	0

1 000 + 0 + 90 + 0

thou-sands	hund-reds	tens	ones
5	6	0	2

5 000 + 600 + 0 + 2

1. Fill in the blanks, and write the numbers as a sum of the different place values.

a. 1 034 = ____ thousand ____ hundreds ____ tens ____ ones

= 1 000 + 0 + 3 0 + 4

b. 5 670 = ____ thousand ____ hundreds ____ tens ____ ones

= 5 000 + _____ + _____ + ____

c. 3 508 = ____ thousand ____ hundreds ____ tens ____ ones

= _____ + _____ + _____ + ____

d. 8 389 = ____ thousand ____ hundreds ____ tens ____ ones

= _____ + _____ + _____ + ____

e. 9 007 = ____ thousand ____ hundreds ____ tens ____ ones

= _____ + _____ + _____ + ____

f. 7 214 = ____ thousand ____ hundreds ____ tens ____ ones

= _____ + _____ + _____ + ____

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2. Fill in the table.

a. Five thousand nine hundred and ninety T H T O	**b.** Six thousand and sixteen T H T O	**c.** Six thousand three hundred and three T H T O
d. Eight thousand seven hundred T H T O	**e.** Nine thousand two hundred and forty-five T H T O	**f.** Ten thousand ten thou-sands T H T O 1 0 0 0 0

3. These numbers are written as sums. Write them in the normal way.

a. 2 000 + 90 = _____ 3 000 + 200 = _____	**b.** 8 000 + 5 = _____ 1 000 + 80 + 7 = _____
c. 8 000 + 200 + 20 = _____ 2 000 + 500 + 90 + 8 = _____	**d.** 4 000 + 50 = _____ 2 000 + 800 + 7 = _____

4. What part of these numbers is missing?

a. 5 000 + 80 + _____ = 5 083	**b.** 7 000 + _____ + 5 = 7 605
c. _____ + 3 000 = 3 050	**d.** _____ + 700 + 1 = 2 701

5. Write the numbers immediately after and before the given number.

a. _____ , 6 049 , _____

b. _____ , 2 324 , _____

c. _____ , 1 800 , _____

d. _____ , 8 809 , _____

e. _____ , 7 385 , _____

f. _____ , 9 244 , _____

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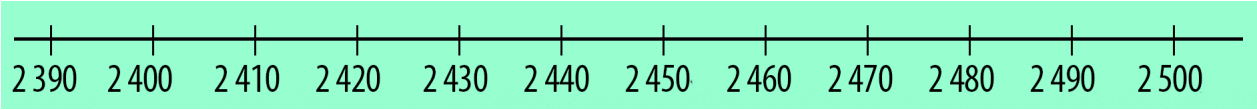
6. These numbers are written as sums, but in a scrambled order! Write them as normal numbers.

a. 4 000 + 900 + 7 = _____	**b.** 80 + 500 + 8 000 + 6 = _____
c. 2 thousand 7 ones 4 tens	**d.** 2 tens 6 hundred 4 thousand
e. 7 thousand 8 hundred 8 ones	**f.** 5 thousand 6 tens
g. 3 thousand 4 ones	**h.** 5 hundred 9 thousand

7. What part of these numbers is missing?

a. 900 + 2 + _____ = 8 902	**b.** 5 000 + 40 + _____ = 5 046
c. _____ + 6 000 + 40 = 6 540	**d.** _____ + 4 000 + 300 = 4 340

8. Here is a number line from 2 390 to 2 500 with tick-marks for every 10.



Mark these numbers on the number line (approximately):
2 415 2 398 2 441 2 476 2 483 2 499.

9. Draw a number line from 7 650 to 7 800 with tick marks at every 10.

Mark these numbers on the number line (approximately):
7 659, 7 672, 7 745, 7 758, 7 777, 7 796

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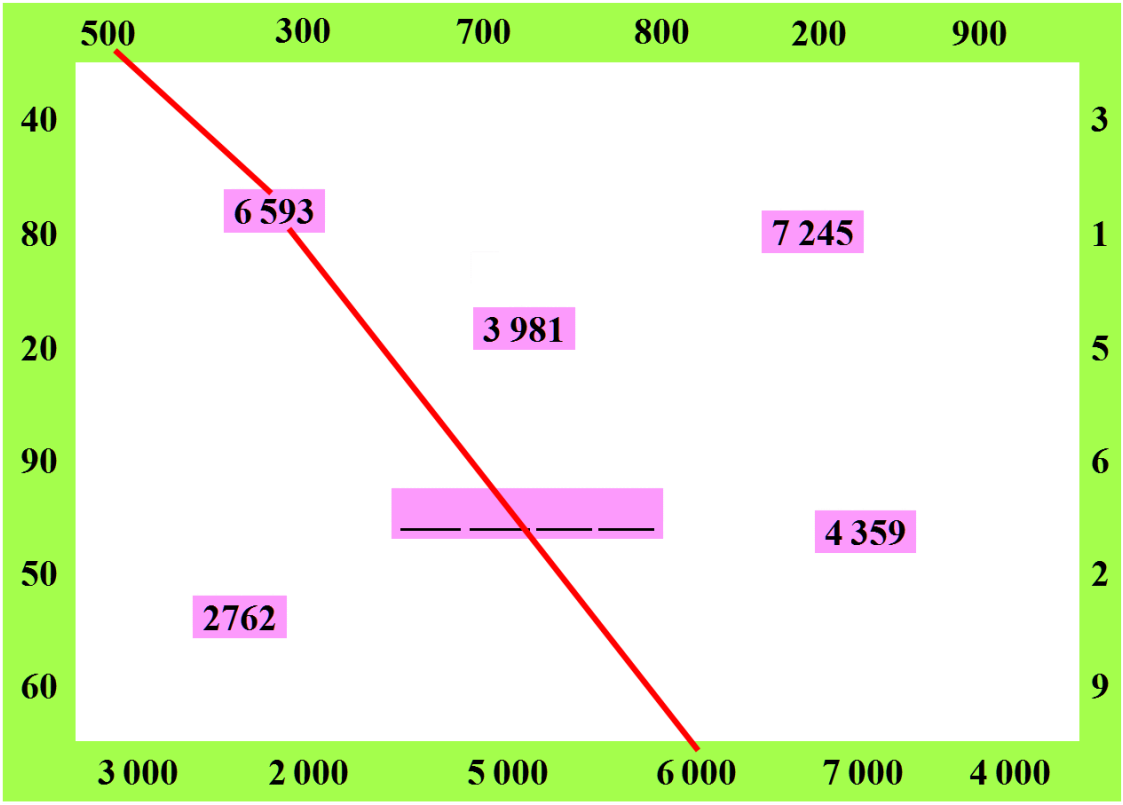
10. Connect each number inside the puzzle to its whole thousands, hundreds, tens and ones that it contains. For example, 6 593 is connected to 6 000 and to 500 (for starters). Add the unused numbers from the border to form the missing number inside.



11. Solve the puzzle. Think of breaking up the numbers into thousands, hundreds, tens and ones.

	+		+		+		=	5 206
+		+		+		+		
	+		+		+		=	3 078
+		+		+		+		
	+		+		+		=	1 925
+		+		+		+		
	+		+		+		=	432
=		=		=		=		
5 922		3 235		1 408		976		

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Chapter 7: Geometry
Introduction

The seventh chapter of *Math Mammoth International Version Grade 3* deals with geometry. The emphasis is on two new concepts: area and perimeter.

First, we study and revise shapes where the student divides shapes into new ones, and also encounters some tilings (also known as tessellations). Next, we study in more detail about some quadrilaterals, namely squares, rectangles and rhombi (plural of rhombus).

Then comes the focus of this chapter: perimeter and area. Students find perimeters of polygons, including finding the perimeter when the side lengths are given, and finding an unknown side length when the perimeter is given. They learn about area, and how to measure it in square centimetres, square metres, or in just square units if no unit of length is specified. Students also relate area to the operations of multiplication and addition. They learn to find the area of rectilinear figures by dividing them into rectangles and adding the areas.

We also study the distributive property "in disguise." This means using an area model to represent $a \times (b + c)$ as being equal to $a \times b$ plus $a \times$ c. The expression $a \times (b + c)$ is the area of a rectangle with side lengths a and $(b + c)$, which is equal to the areas of two rectangles, one with sides a and b, and the other with sides a and c.

Multiplying by Whole Tens is a lesson about multiplication such as 3×40 or 90×7. It is put here so that students can then use their multiplication skills to calculate areas of bigger rectangles.

Then we solve many area and perimeter problems. That is necessary so that students are able to distinguish between these two concepts. They also get to see rectangles with the same perimeter and different areas or with the same area and different perimeters.

Lastly, we touch on solids, such as cubes, rectangular prisms, pyramids, cones, and cylinders, and study their faces, edges, and vertices. You can make paper models for them from the printouts that you can download here: https://www.mathmammoth.com/download/Printable_cutouts_common_solids.pdf
They are also provided in the download version of the curriculum.

Alternatively, you can buy plastic models for the solids (search the Internet for "geometric solids").

The Lessons

	page	span
Shapes	45	*4 pages*
Some Special Quadrilaterals	49	*3 pages*
Perimeter	52	*3 pages*
Problems with Perimeter	55	*3 pages*
Getting Started with Area	58	*2 pages*
More About Area	60	*4 pages*
Multiplying by Whole Tens	64	*4 pages*
Area Units and Problems	68	*4 pages*
Area and Perimeter Problems	71	*2 pages*
More Area and Perimeter Problems	73	*3 pages*
Solids	76	*2 pages*
Mixed Revision, Chapter 7	78	*2 pages*
Geometry Revision	80	*2 pages*

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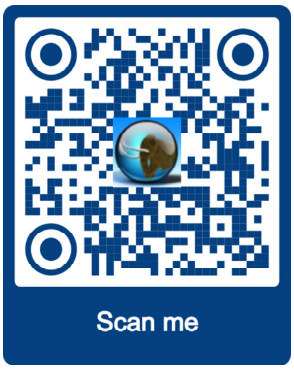
https://links.mathmammoth.com/gr3ch7



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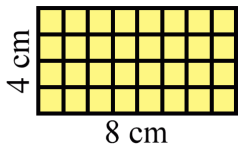
Area and Perimeter Problems

Sometimes it is easy to confuse perimeter and area.

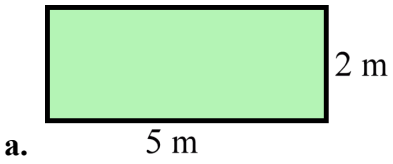
- AREA has to do with covering the shape with squares. Your answer will be in square centimetres, square metres, or just square units.
- PERIMETER has to do with "going all the way around." Your answer will be in some unit of length, such as centimetres or metres.



Area: 4 cm × 8 cm = 32 cm^2.

Perimeter:
4 cm + 8 cm + 4 cm + 8 cm = 24 cm

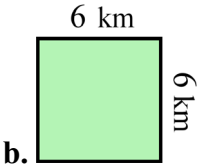
1. Find the area and perimeter of the rectangles.



a.

Perimeter = _____

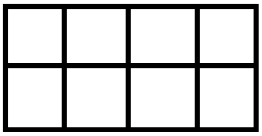
Area = _____



b.

Perimeter = _____

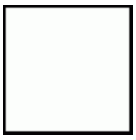
Area = _____



c. 4 m wide, 2 m tall

Perimeter = _____

Area = _____



d. A square with 3 cm sides

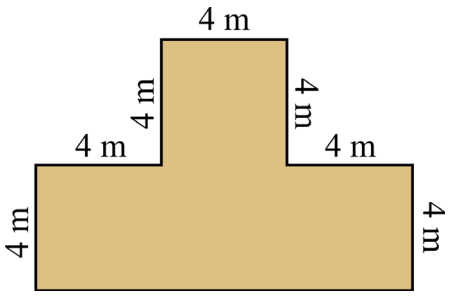
Perimeter = _____

Area = _____

2. Find the area and perimeter of this shape. Notice that one side length is not given. You need to figure that out.

Area:

Perimeter:



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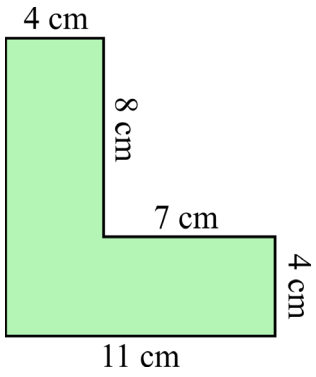
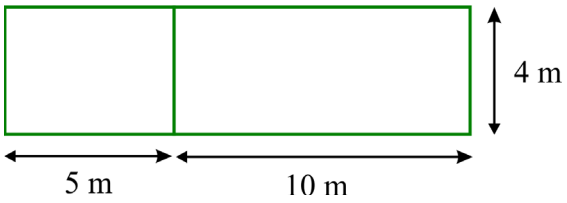
3. Find the area and perimeter of this shape.
Notice that one side length is not given.
You need to figure that out.



Area:

Perimeter:

4. This is a two-part lawn.



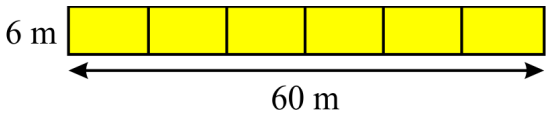
a. Find the areas of the two parts.

_____ and _____

b. Find the total area.

c. Find the perimeter.

5. Find the total area of this rectangle,
and also the area of each little part.

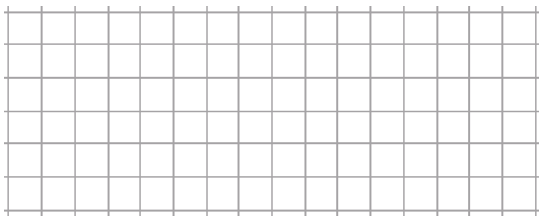


Area of each part:

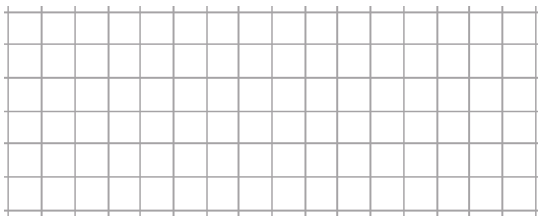
Total area:

Puzzle Corner

Can you draw these rectangles? Guess and check!



a. Draw a rectangle with an area of 39 squares, and a perimeter of 32 units.



b. Draw a rectangle with an area of 56 squares, and a perimeter of 36 units.

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Chapter 8: Measuring
Introduction

The eighth chapter of *Math Mammoth International Version Grade 3* covers measuring-related topics.

If you have the downloadable version of this book (PDF file), you need to print this file as 100%, not "shrink to fit," "print to fit," or similar. If you print "shrink to fit," some exercises about measuring in centimetres will not come out right, but will be "shrunk" in comparison to reality.

First, children learn about units of length in the metric system. Then, in the following lesson, they measure using centimetres and millimetres.

Later, students study line plots and get more practice measuring objects at home or in the classroom.

The next lesson helps students become familiar with metres and kilometres—the units for measuring medium and long distances.

Then it is time to measure weight. The lesson deals with grams and kilograms. It is very helpful if you can use a kitchen scales for this lesson, perhaps borrowing one if you do not own one.

Lastly, we study the metric units of liquid volume (litre and millilitre). The emphasis is on becoming familiar with measuring volume in millilitres.

Many of the lessons in this chapter also have an optional section about conversions between measuring units, such as changing three metres into centimetres. Converting between units is beyond the Common Core standards for third grade (it is actually included in the 4th and 5th grade standards), but I have included some easy conversion problems here because I feel many third graders are ready for them.

We all use various measuring units in our everyday lives, and using them is the key to remembering what they are, how big they are and what the conversion factors are. The units your child is not using are likely to be forgotten easily. So encourage the student(s) to have free play time with measuring devices such as a scales, measuring cups, measuring tapes, and rulers.

The Lessons

	page	span
Centimetres and Millimetres	85	*4 pages*
Line Plots and More Measuring	89	*3 pages*
Metres and Kilometres	92	*2 pages*
Grams and Kilograms	94	*4 pages*
Millilitres and Litres	98	*2 pages*
Mixed Revision, Chapter 8	100	*2 pages*
Revision, Chapter 8	102	*2 pages*

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

Helpful Resources on the Internet

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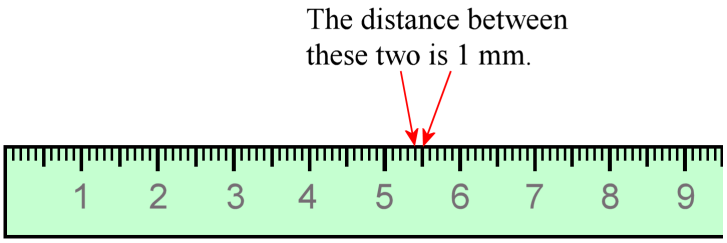
https://links.mathmammoth.com/gr3ch8int

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

Centimetres and Millimetres

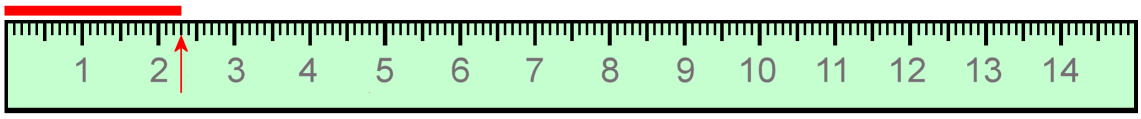
This ruler measures in centimetres.
The numbers signify whole centimetres.
All the shorter lines between those are for *millimetres*.

The distance from one short line to the next line is *1 millimetre*. We write 1 mm. Millimetres are very tiny!



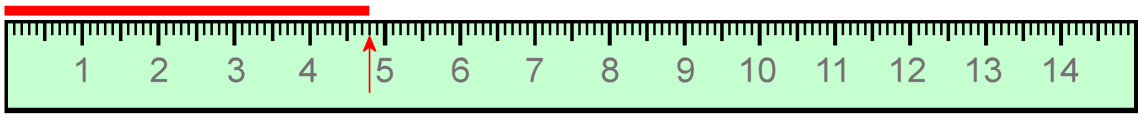
Look at the ruler: **there are 10 millimetres in each centimetre.**

Measuring lines: First see how many whole centimetres long the line is. Then count how many little millimetre-lines beyond that it reaches.



This line is 2 cm 3 mm long. At the same time, it is 23 mm long. Why?

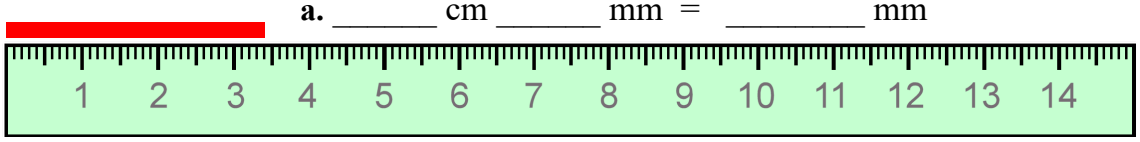
Each centimetre is 10 mm, so 2 cm is 20 mm. So, 2 cm 3 mm makes 23 mm in total.



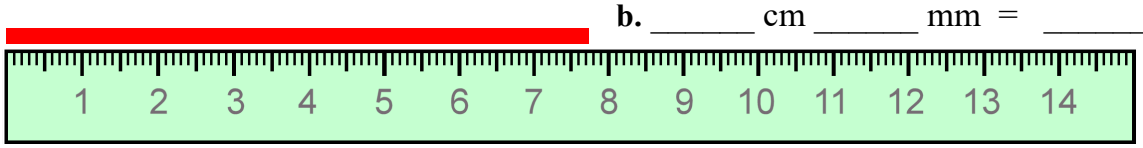
This line is 4 cm 8 mm long. At the same time, it is 48 mm long.

1. Measure the lines using the ruler, first in whole centimetres and millimetres. Then write their lengths using millimetres only.

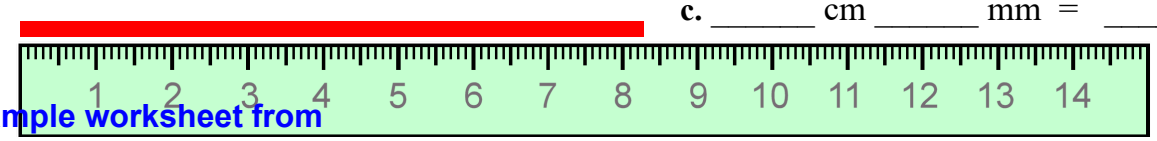
a. _____ cm _____ mm = _____ mm



b. _____ cm _____ mm = _____ mm



c. _____ cm _____ mm = _____ mm



Sample worksheet from
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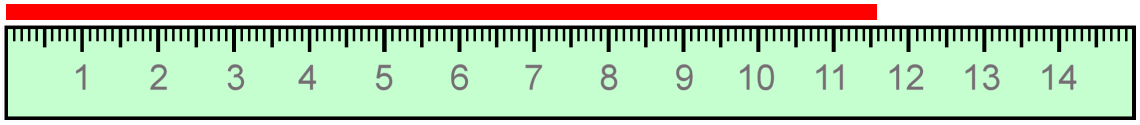
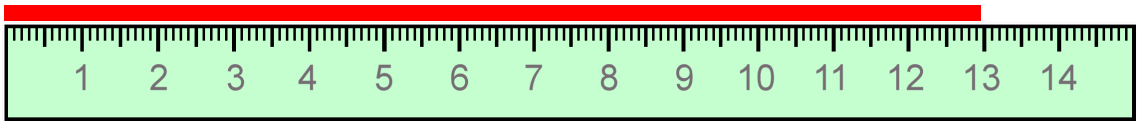
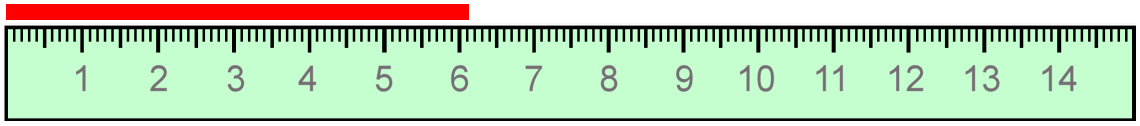


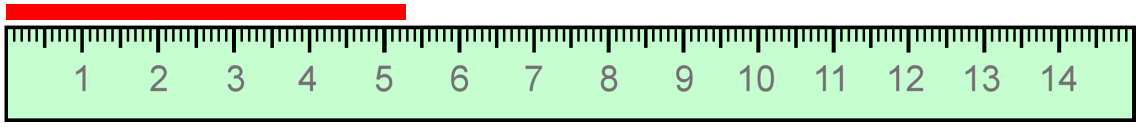
d. _____ cm _____ mm = _____ mm



e. _____ cm _____ mm = _____ mm



f. _____ cm _____ mm = _____ mm



g. _____ cm _____ mm = _____ mm

2. Draw lines using a ruler.

a. 7 cm 8 mm

b. 10 cm 5 mm

c. 14 mm

d. 55 mm

e. 126 mm

Sample worksheet from
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3. Measure items you can find at home, using a centimetre-millimetre ruler.
If the item is not exactly as long as the markers on the ruler, choose the nearest mark.

Item	Length

4. Change between centimetres and millimetres.

a.	b.	c.
1 cm = _____ mm	1 cm 1 mm = *11* mm	4 cm 5 mm = _____ mm
2 cm = _____ mm	1 cm 2 mm = _____ mm	2 cm 5 mm = _____ mm
5 cm = _____ mm	1 cm 8 mm = _____ mm	7 cm 8 mm = _____ mm
8 cm = _____ mm	2 cm 3 mm = _____ mm	10 cm 4 mm = _____ mm

5. Change between millimetres and centimetres.

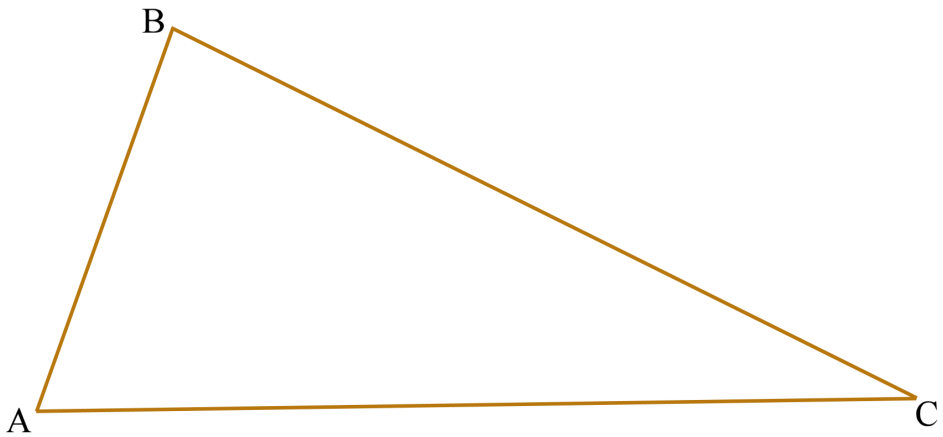
a.	b.	c.
70 mm = _____ cm	12 mm = ____ cm _____ mm	89 mm = ____ cm _____ mm
100 mm = _____ cm	45 mm = ____ cm _____ mm	102 mm = ____ cm _____ mm

6. Measure the sides of this triangle in millimetres.

Side AB _____ mm

Side BC _____ mm

Side CA _____ mm



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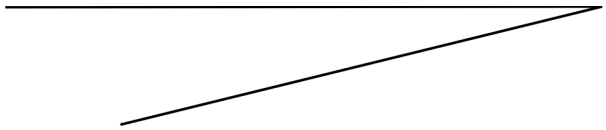
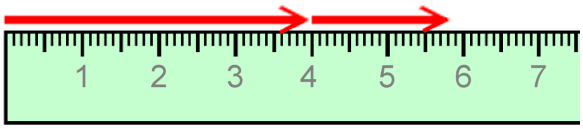
7. Find the perimeter of the triangle in the previous exercise.

8. Draw the third side of this triangle.
Then measure its sides.
Lastly, find its perimeter in millimetres.



The first arrow is 4 cm. The second arrow is 1 cm 8 mm. How long are they together? Add, giving your answer in millimetres.



4 cm + 1 cm 8 mm = 5 cm 8 mm = 58 mm

Add centimetres with centimetres, and millimetres with millimetres.
Remember that 10 millimetres makes 1 centimetre.

9 mm + 6 cm + 2 mm = 6 cm 11 mm = 7 cm 1 mm = 71 mm

If you have both millimetres and centimetres, change the centimetres to millimetres first:

84 mm + 3 cm + 9 mm = 84 mm + 30 mm + 9 mm = 123 mm (which is also 12 cm 3 mm)

9. Work out these "line additions." Give your answers in millimetres.

a. 1 cm 5 mm + 5 mm	**b.** 28 mm + 7 cm
c. 5 mm + 5 cm 8 mm	**d.** 2 cm 4 mm + 4 cm 5 mm
e. 52 mm + 2 cm 4 mm	**f.** 6 cm + 8 mm + 17 mm
g. 9 mm + 17 mm + 2 cm	**h.** 139 mm + 50 cm + 2 mm

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Chapter 9: Division
Introduction

The ninth chapter of *Math Mammoth International Version Grade 3* covers the concept of division, basic division facts that are based on the multiplication tables, and the concept of remainder. The aim is to lay a good foundation for the concept of division, cementing the link between multiplication and division.

The concept of division in itself is not difficult—after all, it is like backwards multiplication. The student needs to know the multiplication tables well as a prerequisite for this chapter. The student can start studying the lessons in this chapter even if he still needs some practice with the multiplication tables, but if he is a long way from mastering them, he should not study this chapter yet.

There are basically two ways to illustrate division with concrete objects. The first way is equal sharing: we divide or share items equally among people. For example, the problem 12 ÷ 3 would mean, "If you share 12 bananas equally among 3 people, how many bananas does each one get?"

The second way has to do with grouping. The problem 12 ÷ 3 would be, "If you have 12 items, how many groups of three items can you make?" These two interpretations of division are important to understand so that the student can solve real-life and mathematical problems involving division.

We also study division by zero. From studying that lesson, students should recognise that division by zero "does not work." I realise that in higher forms of mathematics, division by zero may be defined (such as 1 ÷ 0 = infinity). For now, this is the understanding that a third grader should get.

Lastly, students study the concept of remainder, or division that is not exact. We start by letting the students find the remainder using visual models (you could also use manipulatives). Then they learn how to find the remainder by calculating. This concept will be studied again in fourth grade.

The Lessons

	page	span
Division as Making Groups	107	*4 pages*
Division and Multiplication	111	*4 pages*
Division and Multiplication Facts	115	*3 pages*
Dividing Evenly into Groups	118	*4 pages*
Division Word Problems	122	*3 pages*
Zero in Division	125	*3 pages*
When Division Is Not Exact	128	*3 pages*
More Practice with the Remainder	131	*2 pages*
Mixed Revision, Chapter 9	133	*2 pages*
Revision, Chapter 9	135	*2 pages*

Sample worksheet from
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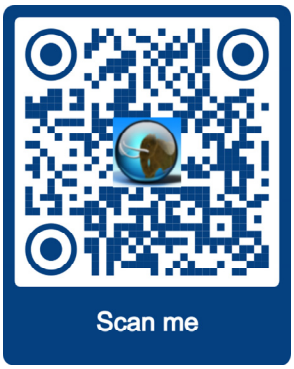
Helpful Resources on the Internet

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

https://links.mathmammoth.com/gr3ch9



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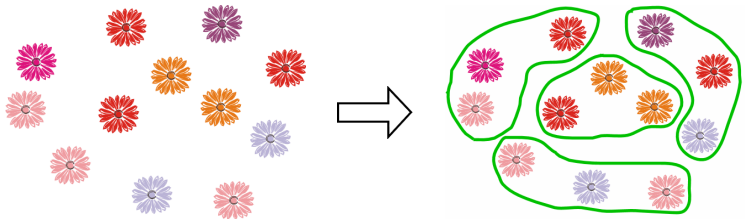
Division as Making Groups

There are 12 daisies. Make groups of 3.

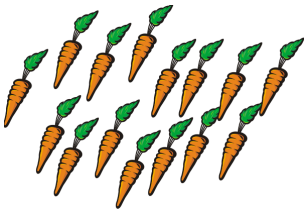


How many groups? *Four groups.*

How many 3's are there in 12? *Four.*

1. Divide into groups.

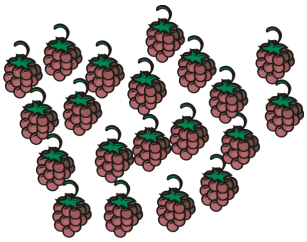
a. There are 15 carrots. Make groups of 5.



How many groups? _____

How many 5's are there in 15 ? _____

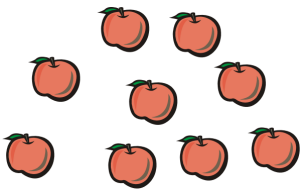
b. There are _____ berries. Make groups of 4.



How many groups? _____

How many 4's are there in _____? _____

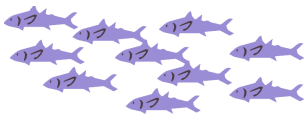
c. There are _____ apples. Make groups of 3.



How many groups? _____

How many 3's are there in _____? _____

d. There are _____ fish. Make groups of 2.



How many groups? _____

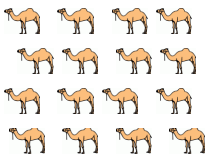
How many 2's are there in _____? _____

e. There are _____ daisies. Make groups of 6.

How many groups? _____

How many 6's are there in _____? _____

f. There are _____ camels. Make groups of 4.



How many groups? _____

How many 4's are there in _____? _____

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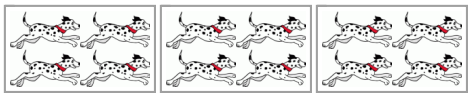


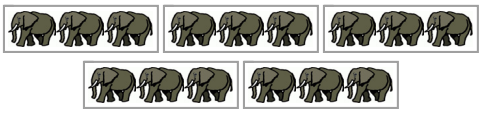
DIVIDE 12 dogs into groups of **four**.

How many groups? *Three*

How many 4's in 12? _____

$12 \div 4 = 3$

"Twelve divided by four is three."



DIVIDE 15 elephants into groups of **three**.

How many groups? _____

How many 3's in 15? _____

$15 \div 3 = 5$

"Fifteen divided by three is five."

18 ÷ 6 = ? *Think*: If you DIVIDE 18 into groups of six, how many groups are there? How many groups of six are there in 18? How many sixes are there in 18?

Since 6 + 6 + 6 = 18, there are THREE sixes in 18. So, 18 ÷ 6 = 3.

2. Write a division sentence to fit the pictures in exercise 1.

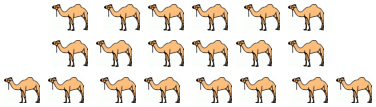
a. _____ ÷ _____ = _____	**b.** _____ ÷ _____ = _____	**c.** _____ ÷ _____ = _____
d. _____ ÷ _____ = _____	**e.** _____ ÷ _____ = _____	**f.** _____ ÷ _____ = _____

3. Make a division sentence.

a. Divide 10 rams into groups of two. How many groups?

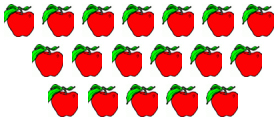
_____ ÷ _____ = _____

b. Divide _____ camels into groups of four. How many groups?



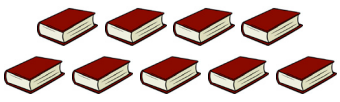
_____ ÷ _____ = _____

c. Divide _____ apples into groups of six. How many groups?



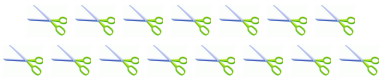
_____ ÷ _____ = _____

d. Divide _____ books into groups of three. How many groups?



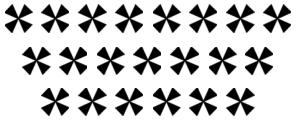
_____ ÷ _____ = _____

e. Divide _____ pairs of scissors into groups of five. How many groups?



_____ ÷ _____ = _____

f. Divide _____ crosses into groups of three. How many groups?



_____ ÷ _____ = _____

Sample worksheet from
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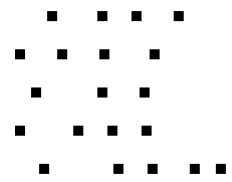
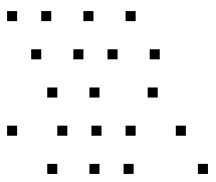
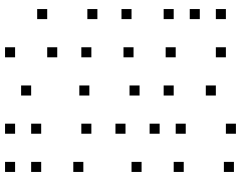
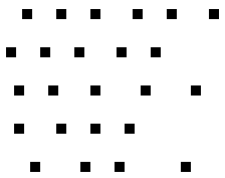
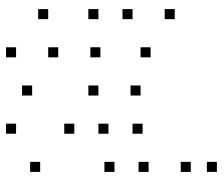
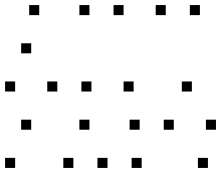
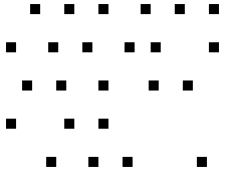
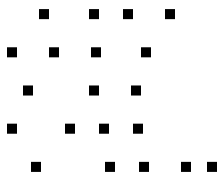
4. Draw sticks. Divide them into groups to fit the division sentence.

a. 18 ÷ 3 = _____	**b.** 24 ÷ 2 = _____
c. 21 ÷ 3 = _____	**d.** 25 ÷ 5 = _____
e. 15 ÷ 5 = _____	**f.** 24 ÷ 8 = _____

5. Make groups by circling dots and write a division sentence.

a. Make groups of 4  _____ ÷ 4 = _____	**b.** Make groups of 2  _____ ÷ 2 = _____	**c.** Make groups of 6  _____ ÷ 6 = _____	**d.** Make groups of 3  _____ ÷ 3 = _____
e. Make groups of 5  _____ ÷ 5 = _____	**f.** Make groups of 7  _____ ÷ 7 = _____	**g.** Make groups of 6  _____ ÷ 6 = _____	**h.** Make groups of 10  _____ ÷ 10 = _____

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

6. Solve the word problems. Write a division or a multiplication for each problem.

The box ☐ is for the × or ÷ symbol.

a. The class has 20 children. Each minibus will hold five children. How many minibuses are needed for the class?

_____ ☐ _____ = _____

b. Keith placed 30 marbles in rows of 5. How many rows did he get?

_____ ☐ _____ = _____

c. Ellie packed hairpins in bags. She put 20 pins in each bag and filled four bags. How many pins were there?

_____ ☐ _____ = _____

d. Karen packed 28 T-shirts in bags. She put four shirts in each bag. How many bags did she use?

_____ ☐ _____ = _____

e. Bill has 16 poster boards. He needs four of them to make a big poster. How many big ones can he make?

_____ ☐ _____ = _____

f. Molly studied three hours each day for seven days. How many hours did she spend studying in total?

_____ ☐ _____ = _____

7. Solve. You can draw to help. Can you find a pattern?

a.	**b.**	**c.**
4 ÷ 2 = _____	20 ÷ 10 = _____	10 ÷ 5 = _____
6 ÷ 2 = _____	30 ÷ 10 = _____	15 ÷ 5 = _____
8 ÷ 2 = _____	40 ÷ 10 = _____	20 ÷ 5 = _____
10 ÷ 2 = _____	50 ÷ 10 = _____	25 ÷ 5 = _____
12 ÷ 2 = _____	_____ ÷ 10 = _____	_____ ÷ 5 = _____
14 ÷ 2 = _____	_____ ÷ 10 = _____	_____ ÷ 5 = _____
16 ÷ 2 = _____	_____ ÷ 10 = _____	_____ ÷ 5 = _____
_____ ÷ 2 = _____	_____ ÷ 10 = _____	_____ ÷ 5 = _____
_____ ÷ 2 = _____	_____ ÷ 10 = _____	_____ ÷ 5 = _____

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Chapter 10: Fractions
Introduction

The last chapter of *Math Mammoth Grade 3* deals with a few elementary fraction concepts: the concepts of a fraction and of a mixed number, fractions on a number line, equivalent fractions, and comparing fractions.

First, the child learns to identify fractions in visual models, and to draw "pie models" for some common fractions. You can also use manipulatives or the fraction cut-outs provided. In the download version, they are found in their separate folder, and in the printed version, they are appended to the answer key.

Next, students represent fractions on a number-line diagram by partitioning the interval from 0 to 1 into equal parts. They also study fractions on number lines that go up to 3 and learn to write whole numbers as fractions.

The lesson about mixed numbers relies on visual models and number lines. I strongly feel that students first need to understand fraction operations and concepts with the help of visual models or manipulatives, and not introducing the various rules for calculations too soon. Students match fractions and mixed numbers, and even convert mixed numbers back into fractions using visual models. The actual rule for the conversion is not introduced on this level.

Next, we study equivalent fractions. Students recognise and generate simple equivalent fractions using visual models and number lines.

Lastly, students compare fractions in special cases, such as when they have the same numerator or the same denominator, or when the comparison can be made from visual models. They also learn that comparisons are valid only when the two fractions refer to the same whole.

The Lessons

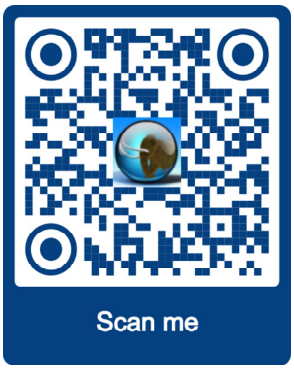
	page	span
Understanding Fractions	139	*4 pages*
Fractions on a Number Line	143	*4 pages*
Mixed Numbers	147	*4 pages*
Equivalent Fractions	151	*3 pages*
Comparing Fractions 1	154	*3 pages*
Comparing Fractions 2	157	*2 pages*
Mixed Revision, Chapter 10	159	*2 pages*
Fractions Revision	161	*3 pages*

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

Helpful Resources on the Internet

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

https://links.mathmammoth.com/gr3ch10



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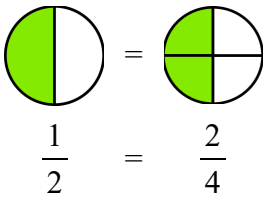
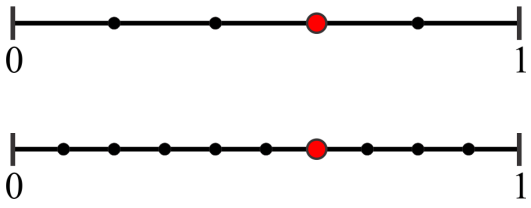
Equivalent Fractions

If you eat half of a pizza, or 2/4 of a pizza, you have eaten the same amount. The two fractions are ***equivalent***.

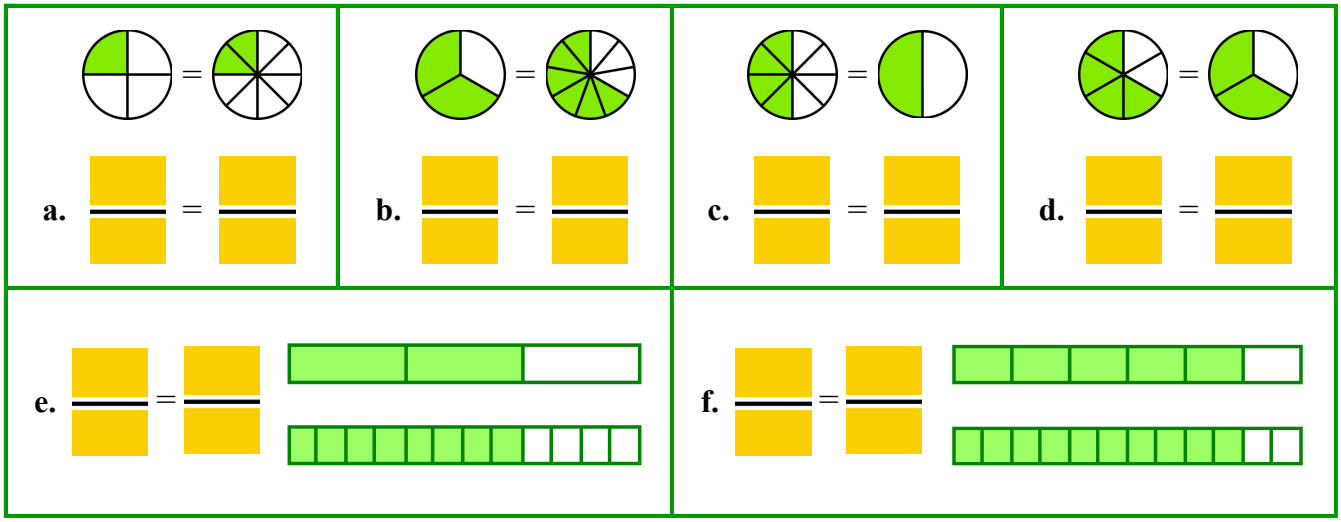
We write an equal sign between them: $\frac{1}{2} = \frac{2}{4}$.



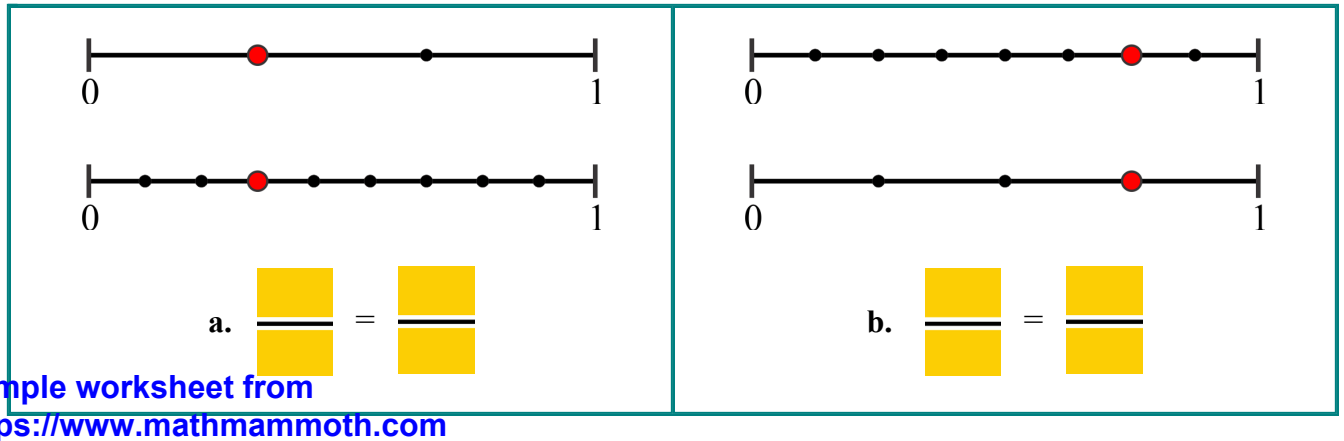
The dot for $\frac{3}{5}$ is in the same place on the number line as the dot for $\frac{6}{10}$. Again, the two fractions are *equivalent*. We can write $\frac{3}{5} = \frac{6}{10}$.



1. Write the equivalent fractions.



2. Write the equivalent fractions.



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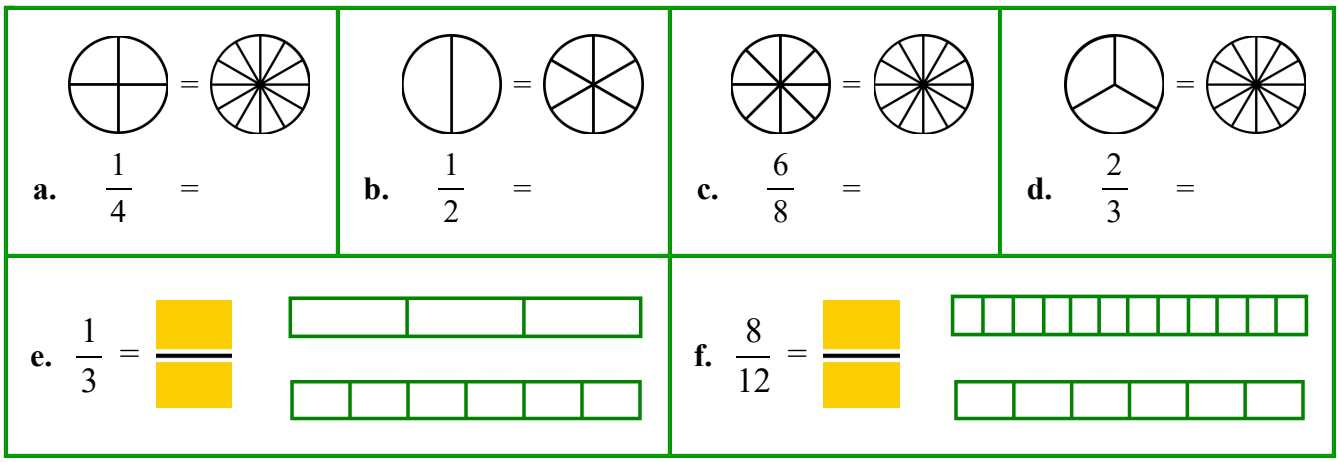
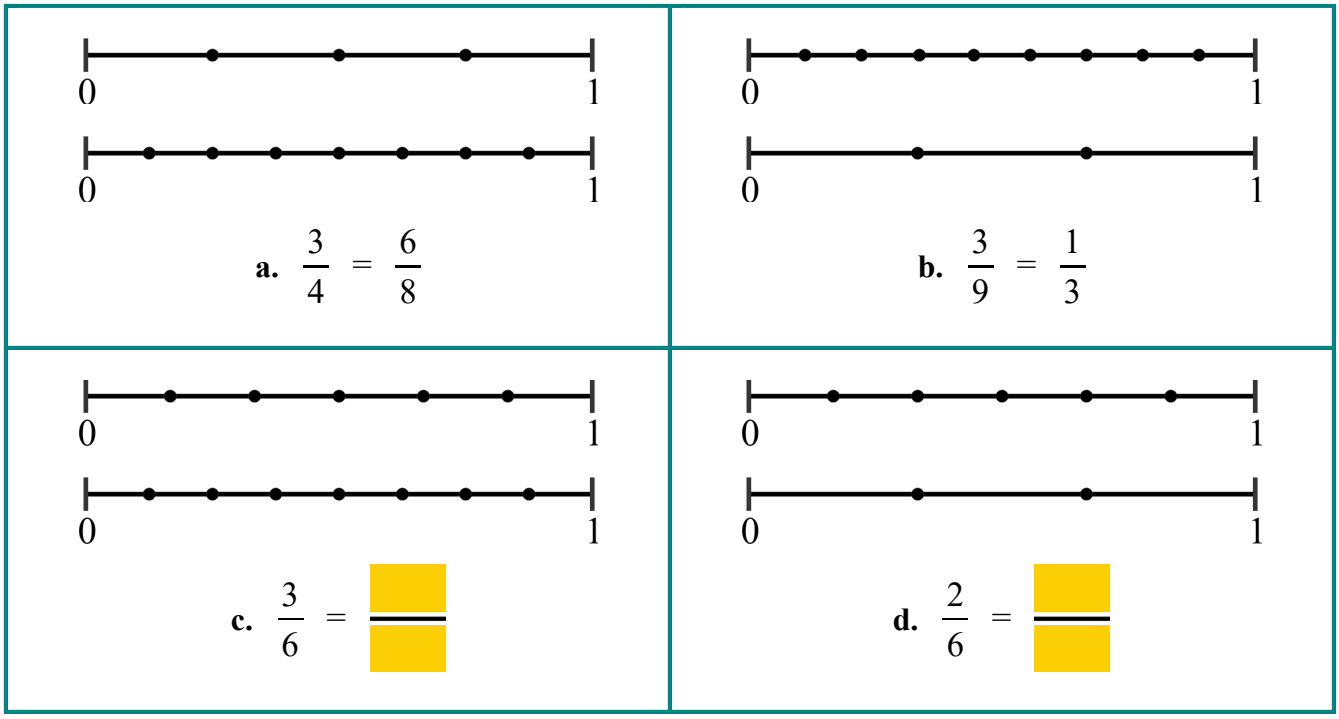
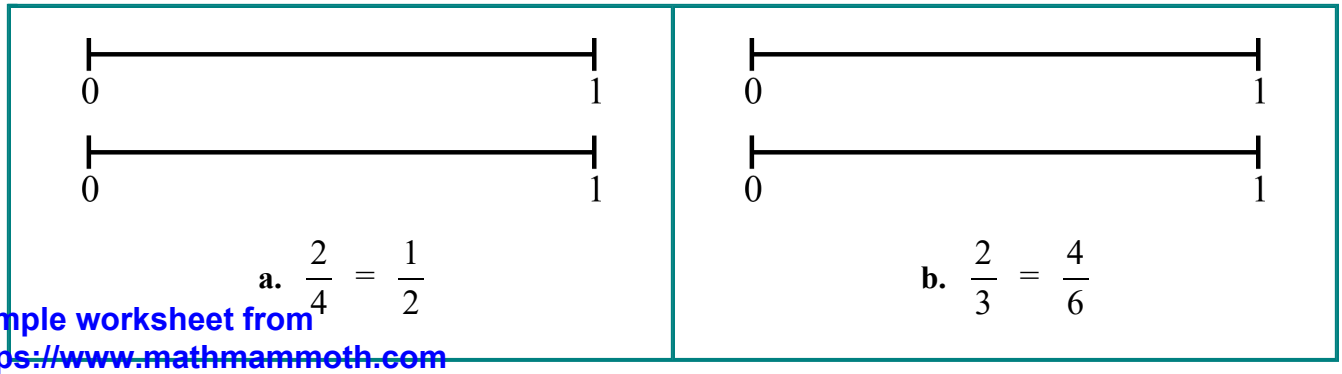
3. Shade the parts for the first fraction. Shade the same *amount* in the second picture. Write the second fraction.



4. Mark the equivalent fractions on the number lines.



5. Mark the equivalent fractions on the number lines. This time, you need to first divide each number line into equal parts.



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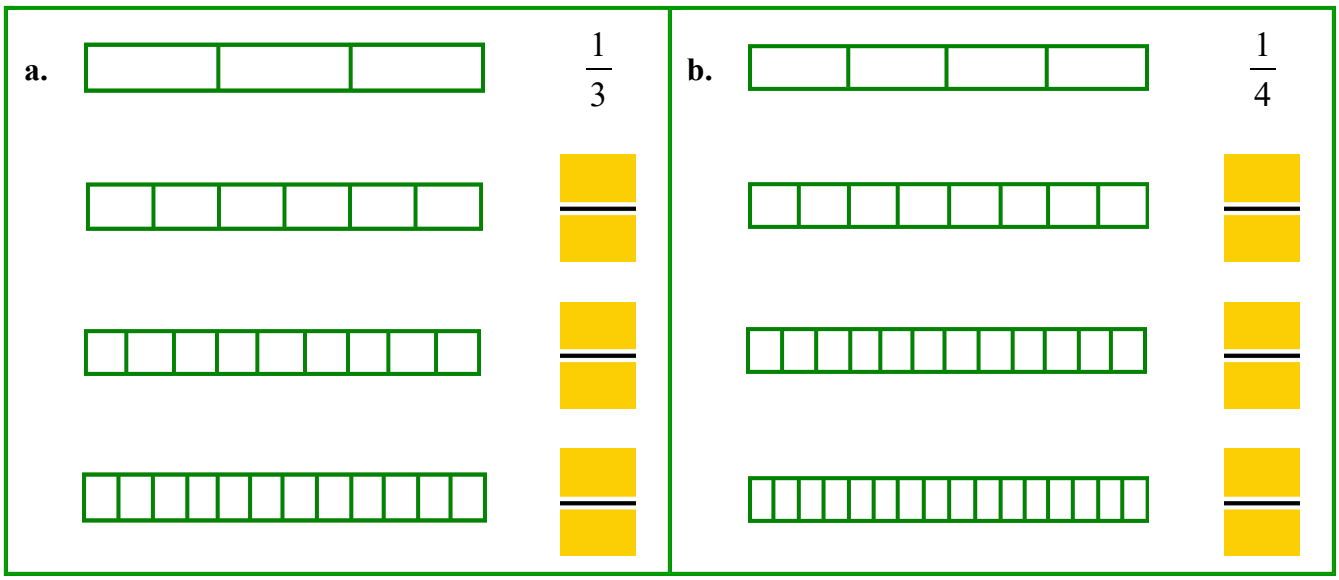
6. Colour in and write many fractions that are equivalent to the first fraction.



7. Four children have a chocolate bar to share. Luke says, "Let's divide it into four equal pieces, and everybody gets one piece." Ashley says, "No, let's divide it into twelve equal pieces and everybody gets three pieces." Whose idea lets everybody get a fair share?

8. Draw a picture to show that 1/2 = 4/8.

9. **a.** Half of the pie is left. Show in the picture how three persons can share it equally.

b. What two equivalent fractions can you write from your "cutting"?

10. Are 5/5 and 4/4 equivalent fractions?
Why or why not?

Puzzle Corner

Which is longer, a rope that is 3 1/2 metres long or a rope that is 3 1/4 metres long?
How much longer is it?

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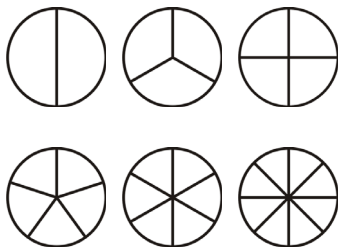
Comparing Fractions 1

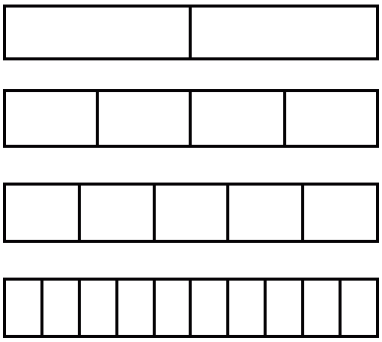
1. Colour in one piece in each "pie." Then compare the fractions. Write $<$ or $>$.



a. $\frac{1}{3} \square \frac{1}{2}$	**b.** $\frac{1}{2} \square \frac{1}{5}$
c. $\frac{1}{5} \square \frac{1}{4}$	**d.** $\frac{1}{6} \square \frac{1}{5}$
e. $\frac{1}{6} \square \frac{1}{8}$	**f.** $\frac{1}{2} \square \frac{1}{8}$

2. Colour in these fractions in the fraction bars.

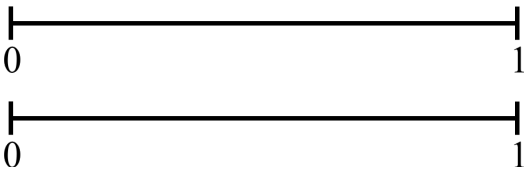
$\frac{1}{5}$ $\frac{1}{10}$ $\frac{1}{2}$ $\frac{1}{4}$



Find the *smallest* fraction (the smallest piece).

Find the *greatest* fraction (the largest piece).

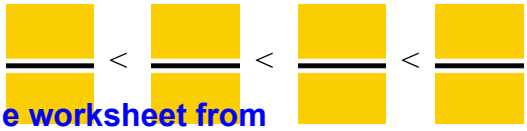
3. Show, using the two number lines, that $\frac{1}{3}$ is greater than $\frac{1}{4}$.



4. Which is a greater fraction, $\frac{1}{9}$ or $\frac{1}{8}$?

Explain how you can know that.

5. Write these four fractions in order from smallest to largest: $\frac{1}{6}$ $\frac{1}{3}$ $\frac{1}{9}$ $\frac{1}{5}$



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