

Illinois IAR Grade 3 Math Puzzles and Brain Teasers

Fun Math Games, Activities & Challenges

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THINK! SOLVE! WIN!

Grade 3 Math Puzzles & Brain Teasers!

Welcome, Puzzle Champion!

This book is packed with **brain teasers, puzzles, and math games** for every Grade 3 topic!

Each chapter has fun puzzles that make you **think differently** about math. Try them all and see how many you can solve!

The more you puzzle, the sharper your brain gets!



What's Inside?

 **Mystery Numbers**

 **Code Breakers**

 **Math Games**

 **Number Patterns**

 **Number Pyramids**

 **Logic Puzzles**

 **Brain Challengers**

 **Magic Squares**

Difficulty Stars:  Warm-Up  Chal-
lenge  Brain Buster!

How to Use This Book

Learn your puzzle types — then tackle them all!

How Each Chapter Works

Every chapter focuses on one math topic. Inside, you'll find 6–8 different puzzles that each test that skill in a **different and surprising way**. Start with Puzzle 1 (easiest) and work your way up to the Brain Busters!

★ Difficulty Stars

- | | | |
|--------------------|--------------|--|
| ★ 1 Star | Warm-Up | Good for getting started — confidence boosters! |
| ★★ 2 Stars | Challenge | These take a bit more thinking. Give it your best shot! |
| ★★★ 3 Stars | Brain Buster | Extra tricky! It's okay if you need to try more than once. |

Puzzle Types You'll See:

 Mystery Number

Read the clues, figure out the secret number, and write it in the blank!

 Logic Puzzle

Use clues to figure out who has what. Think step by step and cross off what's impossible!

 Number Pyramid

Each brick equals the sum of the two bricks below it. Fill in all the missing bricks!

 Magic Square

Fill in the grid so every row, column, and diagonal adds to the same magic sum!

 Brain Teaser

A tricky problem that makes you think outside the box. Read carefully!

 Equation Scramble

Rearrange the scrambled tiles to make a correct math equation!

 Target Number

Use the given digits to hit the target number. How many ways can you find?

 Math Game

Play with a partner! Roll, draw, or flip to practice math in a fun way.

-  **Puzzle Champion Tips:** Read carefully before diving in. • Scratch paper is your best friend.
- Stuck? Check the Answer Key at the back.
 - Try again — every mistake is a clue!



X¹ Math Symbols You Should Know X¹

You'll need these to crack the puzzles!

Symbol	Name	What It Means	
+	Plus (Add)	Put numbers together.	$3 + 5 = 8$
-	Minus (Subtract)	Take away from a number.	$9 - 4 = 5$
×	Times (Multiply)	Add equal groups.	$4 \times 3 = 12$
÷	Divide	Split into equal groups.	$12 \div 3 = 4$
=	Equals	Both sides are the same.	$2 + 3 = 5$
>	Greater Than	The left number is bigger.	$7 > 3$
<	Less Than	The left number is smaller.	$2 < 9$
$\frac{1}{2}$	Fraction Bar	Part of a whole. $\frac{1}{2}$ means 1 out of 2 equal parts	

Key Math Words for Puzzles

- **Sum** — the answer when you add
- **Difference** — the answer when you subtract
- **Product** — the answer when you multiply
- **Quotient** — the answer when you divide
- **Factor** — a number you multiply
- **Digit** — a single number symbol (0–9)
- **Place Value** — what a digit is worth
- **Even** — divisible by 2 (0, 2, 4, 6, 8)
- **Odd** — not divisible by 2 (1, 3, 5, 7, 9)
- **Expanded Form** — showing each digit's value
- **Fraction** — a part of a whole
- **Equivalent** — equal in value
- **Perimeter** — distance around a shape
- **Area** — space inside a shape

 Place Value Chart

<i>Thousands</i>	<i>Hundreds</i>	<i>Tens</i>	<i>Ones</i>
1,000	100	10	1



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CHAPTER

1

Number Sense & Place Value

★ *What's Inside* ★

1.1 <i>Place Value: Ones, Tens, Hundreds</i>	2
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★ 1.1 Place Value: Ones, Tens, Hundreds ★

Place Value Puzzles

🎯 Skills You'll Practice

- Identify the ones, tens, and hundreds places
- Know the value of each digit in a 3-digit number
- Write numbers in expanded form

🔍 Mystery Number! ?

Who Am I?



- 1 I am a 3-digit number.
- 2 My hundreds digit is 4.
- 3 My tens digit is double my ones digit.
- 4 My ones digit is 3.

What number am I? _____

Write me in expanded form: _____

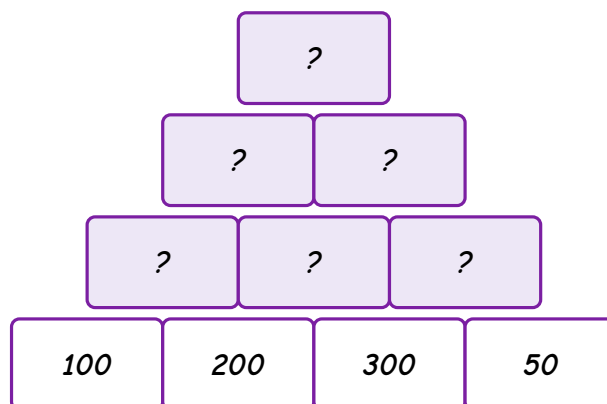


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 Number Pyramid

Each brick equals the **sum** of the two bricks below it. Fill in all the missing bricks!



 **Hint:** Start from the bottom! Add two neighbors to get the brick above.

 Equation Scramble!

Digit Scramble!



Use the digit cards below to build the numbers described. Each card can be used **only once** per number.



1. Build a 3-digit number where the **hundreds** digit is 5, and the number is **less than** 530.

My number: _____



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2. Build the **greatest** 3-digit number you can.

My number: _____

3. Build a 3-digit number where the tens digit is **double** the ones digit.

My number: _____

Which Doesn't Belong?



Look at these numbers. One doesn't belong with the others. Circle it and explain why!

347

523

461

89

752

Which number doesn't belong? _____

Why? _____

Mystery Number! ?

Tricky Number Detective!



1 I am a 3-digit number between 200 and 400.

2 My ones digit is 0.



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3 My tens digit plus my hundreds digit equals 10.

4 My tens digit is greater than 5.

What number am I? _____

How did you figure it out? _____

Crack the Code!

Place Value Secret Code!



Solve each expanded form to find the number. Match the number to its letter to crack the secret word!

M $400 + 20 + 8 =$ _____

A $100 + 50 + 3 =$ _____

T $600 + 70 + 1 =$ _____

H $300 + 90 + 6 =$ _____

Now arrange the letters from **smallest** number to **largest** number.

 Secret Message:

 **Hint:** First find each number. Then put them in order from least to greatest.



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Brain Teaser!

Digit Swap!



Sam wrote the number **639**.

4. If you **swap** the hundreds digit and the ones digit, what new number do you get? _____
5. How much **more** is the new number than the original? _____
6. If you swap the tens and ones digits of 639 instead, what number do you get? _____
7. Which swap makes the **biggest** number? _____



Logic Puzzle!

Place Value Detectives



Three friends each wrote a 3-digit number. Use the clues to figure out each person's number!

Clues:

- Mia's number has 7 in the hundreds place.
- Leo's number has a tens digit that equals 5.
- Ava's hundreds digit is less than Mia's hundreds digit.
- All three numbers use only the digits 2, 5, and 7 (each digit once per number).



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<i>Name</i>	<i>Number</i>
<i>Mia</i>	_____
<i>Leo</i>	_____
<i>Ava</i>	_____

 *Hint: Start with what you know for sure. Mia's hundreds digit is 7.*

 **Puzzle Master!** 

You solved them all!



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CHAPTER

2

Multiplication & Division

★ *What's Inside* ★

2.1 Understanding Multiplication	9
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★ 2.1 Understanding Multiplication ★

🧩 Multiplication Puzzles 🧩

🎯 Skills You'll Practice

- Understand multiplication as equal groups
- Connect repeated addition to multiplication
- Use arrays to model multiplication

🔍 Mystery Number! ?

The Missing Groups!



- 1 I am the total number of objects.
- 2 There are 4 groups.
- 3 Each group has 3 objects.
- 4 You can find me with 4×3 .

What number am I? _____

Write me as a repeated addition: _____



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Crack the Code!

Groups Secret Word!



Solve each multiplication problem. Match the answer to its letter; then arrange the letters from **smallest** answer to **largest** to crack the secret word!

S $3 \times 2 =$ _____

T $2 \times 4 =$ _____

A $5 \times 2 =$ _____

R $4 \times 5 =$ _____

Arrange letters from **smallest** to **largest** answer.

 **Secret Message:**



Which Doesn't Belong?



Each circle shows a total made from equal groups. One total does **not** match its multiplication fact. Circle it and explain why!

6

10

15

11

20

The facts given are: 2×3 , 2×5 , 3×5 , 3×4 , 4×5 .



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Which answer doesn't match? _____

Why? _____



Groups and Totals



Fill in the missing values in the table!

Number of Groups	Objects per Group	Total
3	5	_____
4	_____	16
_____	3	18
5	4	_____
7	_____	14

 **Hint:** Use multiplication: $\text{groups} \times \text{objects per group} = \text{total}$.



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✂ Equation Scramble!

Equation Scramble!



The tiles below make a multiplication equation and its matching repeated addition. Unscramble them to build **two** true sentences!

$$5 \times 3 = 15$$

$$5 + 5 + 5 = 15$$

1. Write the multiplication equation: _____
2. Write the repeated addition: _____
3. How many groups? _____ How many in each group? _____

💡 Brain Teaser! 🧠

Array Detective!



Zara made a rectangular **array** with 24 stickers. She put them in rows with the same number of stickers in each row.

1. If she made 4 rows, how many stickers are in each row? _____
2. If she made 3 rows, how many stickers are in each row? _____
3. Can she make 5 equal rows with no stickers left over? _____
4. Find one MORE way to arrange 24 stickers in equal rows.



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_____ rows of _____



Logic Puzzle!

Who Bought What?



Three friends each bought packs of something. Each pack has an **equal number** of items. Use the clues to figure out who bought what!

Clues:

- Leo bought 3 packs and got 15 items total.
- Mia got 8 items total from her packs.
- Marcus bought 5 packs and each pack had 2 items.
- Mia bought 2 packs.

Name	Packs	Items per Pack	Total
Leo	_____	_____	_____
Mia	_____	_____	_____
Marcus	_____	_____	_____

 **Hint:** Start with what you know for sure and use multiplication to fill in the blanks.



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Math Game!

Roll and Multiply!



- ✓ Two dice (or number cards 1–6)
- ✓ Paper and pencil for each player

How to Play:

1. Roll both dice. One die is the **number of groups**. The other die is the **number in each group**.
2. Write the multiplication equation and find the total.
3. The player with the **greater** total scores a point.
4. Play 10 rounds. Most points wins!

Think About It: You roll a 6 and a 4. Does it matter which one is the groups and which is the items per group? Why or why not? _____



Puzzle Master!



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