

Important Concepts . . .

# Preview Review



**Mathematics**

**Grade 4**

***W2 - Lesson 4: Division 2***

## Important Concepts of Grade 4 Mathematics

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## Materials Required

Mathematics Grade 4

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# **Preview/Review Concepts for Grade Four Mathematics**



***W2 - Lesson 4:  
Division 2***

# OBJECTIVES

By the end of this lesson, you should

- recall the basic multiplication and division facts to 81
- use estimation strategies to solve simple division problems
- use the Three-Step Method to solve simple division problems (with and without remainders)
- use mental math to divide by 10 and by multiples of 10 (*Zap the Zeros*)
- solve division story problems and interpret remainders
- choose the correct operation for addition, subtraction, multiplication, and division story problems

## GLOSSARY

**dividend** - the total number of items to be divided; for example, in  $28 \div 4 = 7$ , **28** is the dividend

**divisor** - the number that you are dividing by; for example, in  $28 \div 4 = 7$ , **4** is the divisor

**estimate** - to make a careful guess that is close to the actual value without calculating the value exactly

**quotient** - the answer obtained by dividing one number by another; for example, in  $28 \div 4 = 7$ , **7** is the quotient

**remainder** - the number left over when a number cannot be divided evenly; for example, in  $32 \div 5$ , the answer is 6 with a **remainder of 2**

## W2 - Lesson 4: Division 2

### A. Basic Division Facts

Learning the multiplication facts is the key to knowing your division facts as well. It is **very important** to learn the multiplication facts because they are used over and over when doing division calculations.

#### 1. Timed Drill

Ask someone to use a watch or a clock to time you as you complete the 25 questions below. Your goal is to complete all 25 questions in **2 minutes!**



$9 \times 4 = \underline{\quad}$      $4 \times 5 = \underline{\quad}$      $2 \times 9 = \underline{\quad}$      $6 \times 3 = \underline{\quad}$      $6 \times 6 = \underline{\quad}$

$5 \times 8 = \underline{\quad}$      $7 \times 9 = \underline{\quad}$      $6 \times 7 = \underline{\quad}$      $3 \times 8 = \underline{\quad}$      $8 \times 4 = \underline{\quad}$

$8 \times 8 = \underline{\quad}$      $4 \times 9 = \underline{\quad}$      $7 \times 7 = \underline{\quad}$      $4 \times 8 = \underline{\quad}$      $9 \times 5 = \underline{\quad}$

$6 \times 8 = \underline{\quad}$      $7 \times 5 = \underline{\quad}$      $3 \times 7 = \underline{\quad}$      $4 \times 7 = \underline{\quad}$      $8 \times 6 = \underline{\quad}$

$5 \times 5 = \underline{\quad}$      $5 \times 9 = \underline{\quad}$      $5 \times 6 = \underline{\quad}$      $9 \times 6 = \underline{\quad}$      $3 \times 9 = \underline{\quad}$

2. Write the answer for each division fact below. Then write the multiplication fact that helped you solve each division question.

**Example:**

$35 \div 5 = ?$

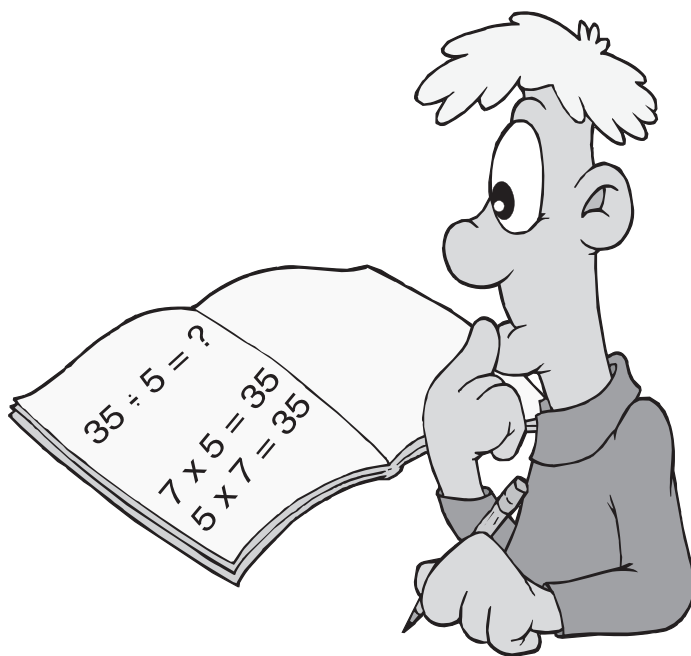
**7**

**$7 \times 5 = 35$**

**$5 \times 7 = 35$**

would also be correct.

- a.  $54 \div 6 =$  \_\_\_\_\_ b.  $32 \div 8 =$  \_\_\_\_\_  
c.  $48 \div 6 =$  \_\_\_\_\_ d.  $28 \div 4 =$  \_\_\_\_\_  
e.  $24 \div 3 =$  \_\_\_\_\_ f.  $56 \div 7 =$  \_\_\_\_\_  
g.  $40 \div 8 =$  \_\_\_\_\_ h.  $63 \div 9 =$  \_\_\_\_\_  
i.  $45 \div 5 =$  \_\_\_\_\_ j.  $72 \div 9 =$  \_\_\_\_\_



## B. Estimating When You Divide

You can use rounding to estimate the answers to some division questions with single-digit divisors. To do this, round the dividend to a multiple of ten (a number ending in zero).

### Example:

Three boys want to share \$29 equally.

**About** how much should each boy receive?

$$3 \overline{) 29}$$

Round the dividend to the closest multiple of 10.

$$3 \overline{) 30}$$

Then divide 30 by 3.

$$\begin{array}{r} 10 \\ 3 \overline{) 30} \end{array}$$

The answer is about 10.

Answer to the Problem: Each boy will receive about \$10.



1. Estimate to find the answer for each problem.

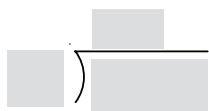
- a. Three friends have 64 marbles to share. **About** how many marbles will each person get?



Write the numbers that you will be dividing.



Then, round 64 to the nearest 10.



Next, divide 60 by 3. Think of a simpler related division fact:  $6 \div 3 = ?$  To divide the multiple, attach a zero.

Answer to the Problem: \_\_\_\_\_

- b. Three girls were given 88 dollars to spend on a trip. They want to divide it equally among themselves. **About** how much will each girl receive?



Answer to the Problem: \_\_\_\_\_



2. For each of the following questions, round the dividend to the nearest 10. Then think of a simpler related division fact, and estimate the quotient.

**Example:**

$$2 \overline{)38}$$

This is the DIVIDEND.

$$2 \overline{)40}^{20}$$

Think:  $2 \times 2 = 4$   
 $2 \times 20 = 40$

a.  $4 \overline{)84}$

b.  $2 \overline{)59}$

c.  $3 \overline{)62}$

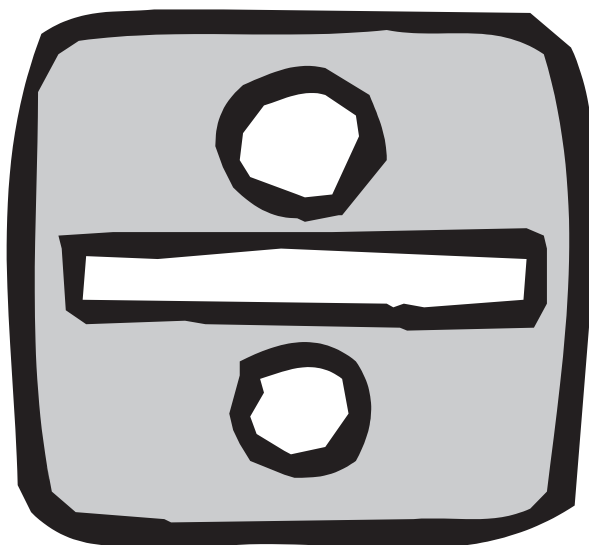
d.  $5 \overline{)53}$

e.  $2 \overline{)78}$

f.  $7 \overline{)72}$

g.  $3 \overline{)89}$

h.  $8 \overline{)81}$



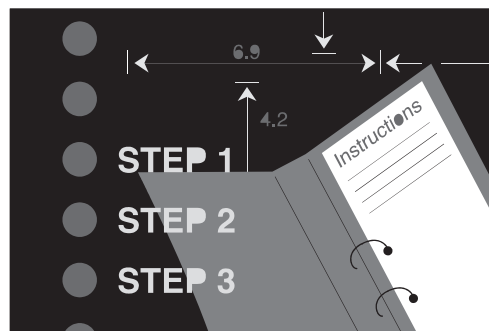
## C. Using the Three-Step Method to Divide

To divide a 2-digit number by a 1-digit number, use the Three-Step Method. Later you will learn how to divide larger numbers by adding a fourth step.

**Step 1: Estimate**

**Step 2: Multiply**

**Step 3: Subtract**



### Example:

Three children have 29 candies to divide equally among themselves. How many candies will each child get? How many candies will be left over?



Use the three-step method to solve this problem.

**Step 1: Estimate**

$$3 \overline{)29}$$

Estimate: How many 3s are in 29?

Think of a multiplication fact using a 3 that will give you an answer close to **but not larger than** 29.

$$3 \overline{)29}^9$$

Think:  $3 \times ? = 29$

$$3 \times 9 = 27 \text{ or } 3 \times 10 = 30$$

**9** is a good estimate because  $3 \times 9$  is 27, which is close to, but less than, 29.

**10** is **not** a good estimate because  $3 \times 10 = 30$  and there are only 29 candies to divide.

**Step 2: Multiply**

$$\begin{array}{r} 9 \\ 3 \overline{)29} \\ -27 \\ \hline \end{array}$$

Multiply  $3 \times 9$ .

Write 27 below 29.

**Step 3: Subtract**

$$\begin{array}{r} 9 \text{ R}2 \\ 3 \overline{)29} \\ -27 \\ \hline 2 \end{array}$$

Subtract 27 ( $29 - 27 = 2$ ).

Write the 2 at the top as a remainder.

The answer is **9 R2**.

Answer to the Problem: **Each child will get 9 candies. There will be 2 candies left over.**

The division equation for this problem is  **$29 \div 3 = 9 \text{ R}2$** .

**Your Turn!**

Use the three-step method to solve this problem.

1. There will be a volleyball tournament at Hillside School. 57 students have signed up to play in the tournament. Each team requires 6 players. How many teams can be put together for the tournament?

**Step 1:** Estimate:

a. 
$$\begin{array}{r} \phantom{0} \\ 6 \overline{) 57} \end{array}$$

**Step 2:** Multiply:

b. 
$$\begin{array}{r} \phantom{0} 9 \\ 6 \overline{) 57} \\ \hline \phantom{0} \end{array}$$

**Step 3:** Subtract

c. 
$$\begin{array}{r} \phantom{0} 9 \\ 6 \overline{) 57} \\ - \phantom{0} 54 \\ \hline \phantom{0} \end{array}$$

d. Answer to the Problem: \_\_\_\_\_

e. Write the question as a division sentence showing the answer and the remainder. \_\_\_\_\_

2. Try the following questions on your own. Be sure to follow all three steps. Remember, the remainder **cannot** be larger than the divisor.

a.  $53 \div 6 = \square$

6	53	
—		

← Step 1: Estimate

← Step 2: Multiply

← Step 3: Subtract

b.  $63 \div 8 = \square$

8	63	
—		

← Step 1: Estimate

← Step 2: Multiply

← Step 3: Subtract

c.  $45 \div 7 = \square$

7	45	
—		

← Step 1: Estimate

← Step 2: Multiply

← Step 3: Subtract

d.  $51 \div 8 = \square$

8	51	
—		

← Step 1: Estimate

← Step 2: Multiply

← Step 3: Subtract

e.  $74 \div 9 = \square$

9	74	
—		

← Step 1: Estimate

← Step 2: Multiply

← Step 3: Subtract

f.  $69 \div 7 = \square$

7	69	
—		

← Step 1: Estimate

← Step 2: Multiply

← Step 3: Subtract

**Extra Practise If You Need It**

3. Solve the following division questions. Use the three-step method.

a.  $5 \overline{)41}$

b.  $3 \overline{)17}$

c.  $4 \overline{)27}$

d.  $5 \overline{)24}$

e.  $7 \overline{)19}$

f.  $6 \overline{)34}$

g.  $5 \overline{)38}$

h.  $6 \overline{)45}$

i.  $7 \overline{)68}$

4. Solve each mini-problem. Be sure to give a word answer.

a. 65 Girl Guides divided into teams of 8. How many teams did they make? Was anyone left over?

b. 42 chocolate bars were divided among 7 teams after a race. How many chocolate bars did each team receive? Were any chocolate bars left over?

## D. Zapping the Zeros

*Zapping the zeros* is a useful mental math skill. It will help you solve certain division questions by canceling zeros.

This strategy can be used whenever the dividend and the divisor both end in one or more zeros.

**Example:** dividend      divisor



$$260 \div 10 =$$

Because both the divisor and the dividend end in zero, you can *zap the zeros*. This means you can drop or cross out the final zero in each number.

$$26\emptyset \div 1\emptyset = 26$$

When you *zap the zeros*,  $260 \div 10$  becomes  $26 \div 1$ , which is much easier to calculate.

$$26 \div 1 = 26$$

$$\text{So, } 260 \div 10 = 26$$

### Your Turn!

Solve the following questions using mental math. Be sure to *zap the zeros* first!

1.  $290 \div 10 =$  \_\_\_\_\_      2.  $540 \div 10 =$  \_\_\_\_\_      3.  $690 \div 10 =$  \_\_\_\_\_

4.  $480 \div 60 =$  \_\_\_\_\_      5.  $240 \div 30 =$  \_\_\_\_\_      6.  $500 \div 50 =$  \_\_\_\_\_

7.  $320 \div 80 =$  \_\_\_\_\_      8.  $240 \div 60 =$  \_\_\_\_\_

9.  $40 \overline{) 360}$

10.  $50 \overline{) 250}$

## E. Using the Four-Step Method to Divide

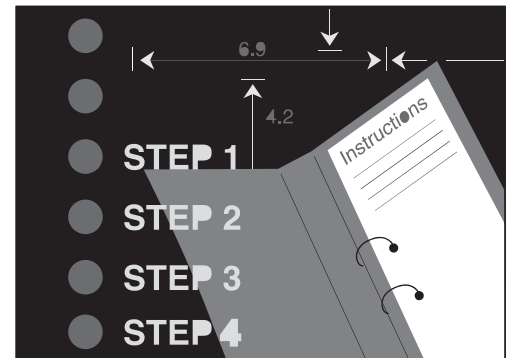
Dividing larger numbers requires an extra step.

**Step 1: Estimate**

**Step 2: Multiply**

**Step 3: Subtract**

**Step 4: Bring down and regroup**



In the division questions that follow, you will see that the steps are repeated more than once.

### Example:

Five Grade Four classes are going on a field trip. Together, there are 96 students. For lunch they are going to a Chinese restaurant. Four students can be seated at each table. How many tables are needed for all the students?

**Step 1: Estimate**

$$4 \overline{)96}$$

Estimate: How many 4s are there in 9 (the first digit of 96)?

Ask: Is there a multiplication fact using 4 that gives an answer close to but not larger than 9?

Think:  $4 \times ? = 9$   
 $4 \times \underline{2} = 8$

$$4 \overline{)96} \quad \begin{array}{r} 2 \\ \end{array}$$

Write the 2 above the 9 tens in 96.



**Step 2: Multiply**

$$\begin{array}{r} 2 \\ 4 \overline{)96} \\ - 8 \\ \hline \end{array}$$

Multiply:  $4 \times 2 = 8$ 

Write 8 below the 9

**Step 3: Subtract**

$$\begin{array}{r} 2 \\ 4 \overline{)96} \\ - 8 \\ \hline 1 \end{array}$$

Subtract:  $9 - 8 = 1$   
[9 tens  $-$  8 tens = 1 ten]**Step 4: Bring Down and Regroup**

$$\begin{array}{r} 2 \\ 4 \overline{)96} \\ - 8 \\ \hline 16 \end{array}$$

Bring down the 6 ones from 96

Regroup to make 16 ones  
[1 ten + 6 ones = 16 ones]

To continue solving this question, you must **repeat** Steps 1 to 3 by dividing the 4 into the 16.

**Step 1: Estimate**

$$\begin{array}{r} 24 \\ 4 \overline{)96} \\ - 8 \\ \hline 16 \end{array}$$

Estimate: How many 4s are there in 16?

Think:  $4 \times ? = 16$  $4 \times 4 = 16$ 

Write the 4 above the 6 in 96.

**Step 2: Multiply**

$$\begin{array}{r}
 24 \\
 4 \overline{) 96} \\
 - 8 \\
 \hline
 16 \\
 - 16 \\
 \hline
 \end{array}$$

Multiply  $4 \times 4$ 

$$4 \times 4 = 16$$

Write 16 below the first 16.

**Step 3: Subtract**

$$\begin{array}{r}
 24 \\
 4 \overline{) 96} \\
 - 8 \\
 \hline
 16 \\
 - 16 \\
 \hline
 0
 \end{array}$$

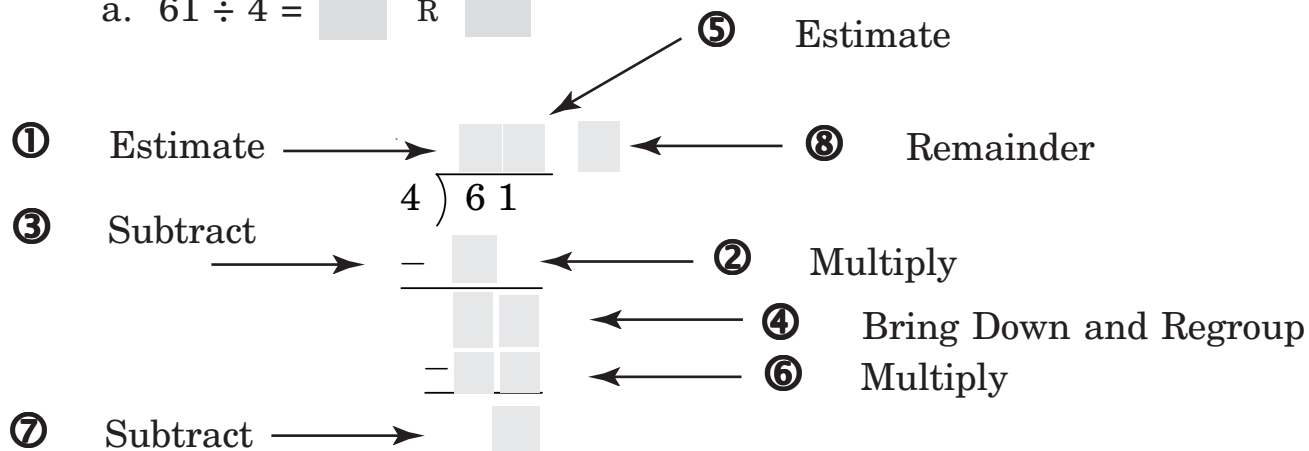
Subtract 16 ( $16 - 16 = 0$ )Write **0** below 6Write **0** at the top as a remainder.

[This is optional when the remainder is zero.]

Answer to the Problem: **24 tables must be reserved**The division equation for this problem is  **$98 \div 4 = 24 \text{ R}0$** **Your Turn!**

1. Try the following division questions on your own. Follow the steps in order from 1 to 8.

a.  $61 \div 4 = \square \text{ R } \square$



b.  $45 \div 4 =$   R

c.  $72 \div 4 =$   R

d.  $79 \div 6 =$   R

e.  $92 \div 4 =$   R

## F. Problem Solving

Solve the following story problems. Use the four-step method of division to find the correct answer. Show your calculation in the space provided. Then give a sentence answer.

### Example:

There are 75 chocolate candies in a bag. If the parents divide the candies equally among their 4 children, how many candies will each child get? How many candies will be left over?

Step 1: The problem asks me to divide 75 candies evenly among 4 children.

Step 2: Choose the correct operation: Division.

Step 3: Divide using the Four-Step Method to find the answer.

Step 4: Look back.

$$75 \div 4 = 18 \text{ R}3$$

Each child will get 18 candies. There will be 3 candies left over.

### Four-Step Process for Problem Solving

Step 1 Understand the problem

Step 2 Make a plan

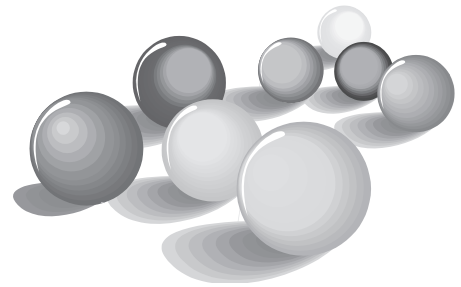
Step 3 Try the plan

Step 4 Look back

$$\begin{array}{r} 18 \text{ R}3 \\ 4 \overline{) 75} \\ \underline{- 4} \phantom{0} \\ 35 \\ \underline{- 32} \\ 3 \end{array}$$

1. A bag of marbles costs 98 cents. Five friends pay for it equally. Explain a way that will be “almost equal”.

- b. Special sparkling marbles cost 7 cents each. How many could you buy for 85 cents? How much money will you have left?

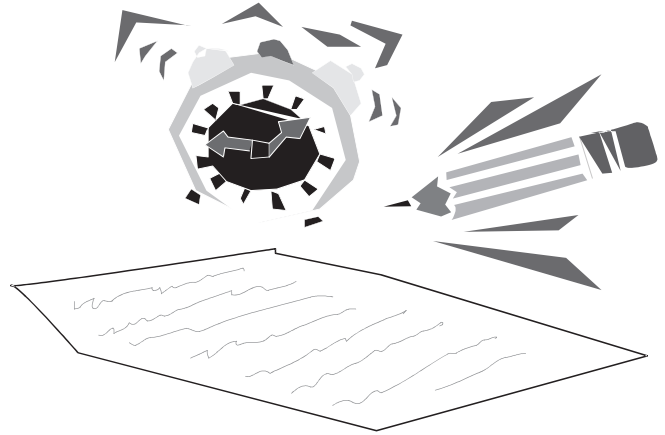


3. There are 96 marbles in a bag. Four friends want to split the whole bag of marbles equally. How many marbles will each of them get? How many marbles will be left over?

## Homework

### 1. Timed Drill

Your goal is to complete all 25 questions in **2 minutes!**



$21 \div 7 = \underline{\quad}$

$45 \div 9 = \underline{\quad}$

$35 \div 7 = \underline{\quad}$

$30 \div 6 = \underline{\quad}$

$25 \div 5 = \underline{\quad}$

$32 \div 8 = \underline{\quad}$

$56 \div 7 = \underline{\quad}$

$24 \div 6 = \underline{\quad}$

$48 \div 8 = \underline{\quad}$

$45 \div 5 = \underline{\quad}$

$27 \div 3 = \underline{\quad}$

$72 \div 8 = \underline{\quad}$

$28 \div 7 = \underline{\quad}$

$64 \div 8 = \underline{\quad}$

$27 \div 9 = \underline{\quad}$

$18 \div 9 = \underline{\quad}$

$48 \div 6 = \underline{\quad}$

$42 \div 6 = \underline{\quad}$

$35 \div 5 = \underline{\quad}$

$20 \div 4 = \underline{\quad}$

$36 \div 6 = \underline{\quad}$

$81 \div 9 = \underline{\quad}$

$40 \div 5 = \underline{\quad}$

$49 \div 7 = \underline{\quad}$

$63 \div 9 = \underline{\quad}$

2. Find each quotient. Look carefully for remainders.

a.  $37 \div 9 =$  \_\_\_\_\_

b.  $42 \div 5 =$  \_\_\_\_\_

c.  $26 \div 3 =$  \_\_\_\_\_

d.  $61 \div 8 =$  \_\_\_\_\_

e.  $37 \div 8 =$  \_\_\_\_\_

f.  $38 \div 6 =$  \_\_\_\_\_

3. Find each quotient. Use the Four-Step Method

a.  $5 \overline{)69}$

b.  $3 \overline{)84}$

c.  $2 \overline{)78}$

d.  $4 \overline{)66}$



