

# PREFACE

**Maths Partner** is a series of six guide books (Primary 1 to Primary 6) designed to help students understand basic primary mathematical concepts.

This series of books covers every topic in each level. Examples are carefully selected based on the latest syllabus and solutions are explained in detail using simple English that can be easily understood by students.

This series of books also provides some useful tips or 'short-cuts' that help students solve mathematical sums with speed and accuracy.

Students can therefore refer to this book to learn simple and practical ways of solving mathematical problems, enabling them to become effective and efficient problem solvers.

**Wayne T**

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## Whole Numbers (1)

*Objective*

Students should be able to

- state the place and value of each digit in a number from 10 000 to 100 000.


**Numbers to 100 000**

What comes immediately after 9999?

Ten thousand

$$9999 + 1 = 10\ 000$$


	Ten Thousands	Thousands	Hundreds	Tens	Ones
1999		•	•••• ••••	•••• ••••	•••• ••••
+					
1					•
=					
2000		••			

16 000	•	••• •••			
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(Sixteen thousand)

16 271	•	••• •••	••	•••• ••••	•
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(Sixteen thousand, two hundred and seventy-one)

 We use a comma (,) to separate the thousand and the hundred.

65 843	••• •••	••• •••	•••• ••••	•• ••	•••
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(Sixty-five thousand, eight hundred and forty-three)

In 65 843,

the digit 6

- is in the ten thousands place
  - stands for 60 thousands or 60 000
  - has a value of 60 000
- 

the digit 5

- is in the thousands place
  - stands for 5 thousands or 5000
  - has a value of 5000
- 

the digit 8

- is in the hundreds place
  - stands for 8 hundreds or 800
  - has a value of 800
- 

the digit 4

- is in the tens place
  - stands for 4 tens or 40
  - has a value of 40
- 

the digit 3

- is in the ones place
  - stands for 3 ones or 3
  - has a value of 3
- 

$$65\ 843 = 60\ 000 + 5000 + 800 + 40 + 3$$

$$= \underline{65\ 000} + \underline{843}$$

↑                    ↑  
sixty-five thousand    eight hundred and forty-three

65 843 is “sixty-five thousand, eight hundred and forty-three” in words.

✚ It is easier to break up the number when writing in numerals.

## Comparing Numbers within 100 000

✚ To compare numbers, we can use the place value chart.

Which number is greater, 98 405 or 62 879?

	Ten Thousands	Thousands	Hundreds	Tens	Ones
98 405	9	8	4	0	5
62 879	6	2	8	7	9

✚ Always start by comparing the digits in the greatest place value. In this case, it is the ten thousands place. 9 ten thousands is greater than 6 ten thousands. So, 98 405 is greater than 62 879 even though the digit 9 in the ones place of 62 879 is greater than the digit 5 in the ones place of 98 405.

✚ We compare numbers, be it for greater or smaller, starting from the greatest place value to the least place value.

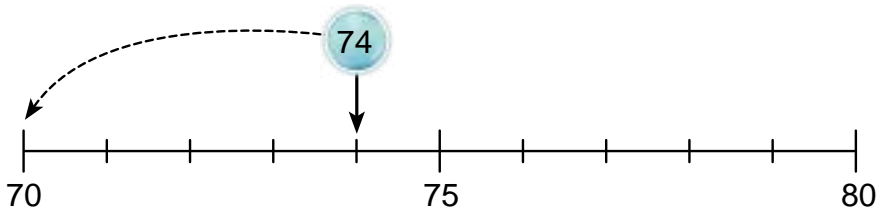
**Objectives**

Students should be able to

- round off numbers to the nearest ten and hundred,
- estimate the answers in calculations involving addition, subtraction, multiplication and division,
- list the factors of a whole number (up to 100).

**Rounding Off Numbers to the Nearest Ten**

1.



✚ Any number from 71 to 74 will be rounded off to 70.

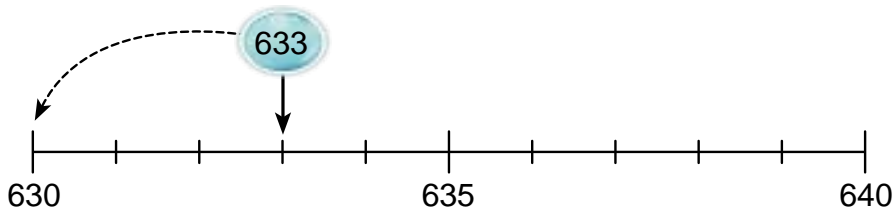
Any number from 75 to 79 will be rounded off to 80.

In this case, 74 is approximately equal to 70.

We write  $74 \approx 70$ .

' $\approx$ ' stands for 'approximately equal to'.

2.



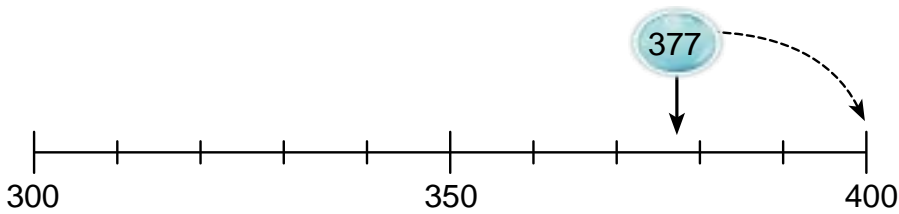
633 is between 630 and 640. It is nearer to 630 than to 640.

So, when rounded off to the nearest ten,  $633 \approx 630$ .

✚ We use the value of the digit in the ones place to decide whether to round off a number to the lower ten or the higher ten.

## Rounding Off Numbers to the Nearest Hundred

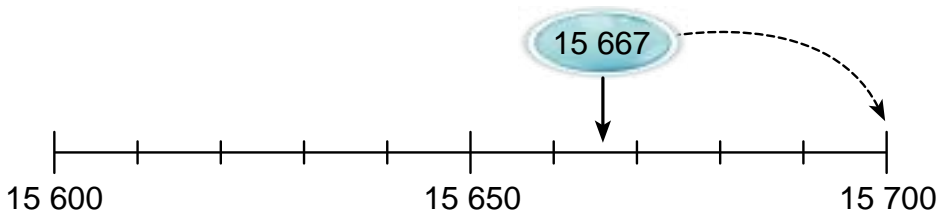
1.



377 is nearer to 400 than to 300.

So, when rounded off to the nearest hundred,  $377 \approx 400$ .

2.



15 667 is nearer to 15 700 than to 15 600.

So, when rounded off to the nearest hundred,  $15\ 667 \approx 15\ 700$ .

✚ We use the value of the digit in the tens place to decide whether to round off a number to the lower hundred or the higher hundred.

## Estimation

✚ We round off numbers before we estimate.

1.  $47 + 91$

We round off the numbers to the nearest ten.

$$47 \approx 50$$

$$91 \approx 90$$

$$50 + 90 = 140$$

So,  $47 + 91 \approx 140$ .

We say the value of  $47 + 91$  is about 140.

2.  $74 - 32$

Round off the numbers to the nearest ten.

$$74 \approx 70$$

$$32 \approx 30$$

$$70 - 30 = 40$$

So,  $74 - 32 \approx 40$ .

The value of  $74 - 32$  is about 40.

3.  $77 \times 3$

Round off 77 to the nearest ten.

$$77 \approx 80$$

$$80 \times 3 = 240$$

So,  $77 \times 3 \approx 240$ .

The value of  $77 \times 3$  is about 240.

4.  $278 \div 4$

✚ It is easier to divide 280 by 4 than to divide 278 by 4. So, we round off 278 to the nearest ten instead of to the nearest hundred.

Round off 278 to the nearest ten.

$$278 \approx 280$$

$$280 \div 4 = 70$$

So,  $278 \div 4 \approx 70$ .

The value of  $278 \div 4$  is about 70.



## Factors

$$8 \div 1 = 8$$

$$8 \div 2 = 4$$

$$8 \div 4 = 2$$

$$8 \div 8 = 1$$

The number 8 can be divided exactly by 1, 2, 4 and 8.

So, 1, 2, 4 and 8 are factors of 8.

8 cannot be divided exactly by 3, 5, 6 or 7.

So, 3, 5, 6 and 7 are not factors of 8.

✚ Knowing the multiplication tables well will make it easier to find the factors of a number.

$$\begin{array}{l} 12 \div 1 = 12 \\ 12 \div 2 = 6 \\ 12 \div 3 = 4 \\ 12 \div 4 = 3 \\ 12 \div 6 = 2 \\ 12 \div 12 = 1 \end{array} \left. \vphantom{\begin{array}{l} 12 \div 1 = 12 \\ 12 \div 2 = 6 \\ 12 \div 3 = 4 \\ 12 \div 4 = 3 \\ 12 \div 6 = 2 \\ 12 \div 12 = 1 \end{array}} \right\} \text{Factors of 12}$$

The factors of 8 are ①, ②, ④ and 8.

The factors of 12 are ①, ②, 3, ④, 6 and 12.

We say the common factors of 8 and 12 are 1, 2 and 4.

## Multiples

To explain what multiples are, let us look at the multiplication table of 4.

$$\begin{array}{ccccc} 1 \times 4 = 4 & 2 \times 4 = 8 & 3 \times 4 = 12 & 4 \times 4 = 16 & 5 \times 4 = 20 \\ 6 \times 4 = 24 & 7 \times 4 = 28 & 8 \times 4 = 32 & 9 \times 4 = 36 & 10 \times 4 = 40 \end{array}$$

4, 8, 12, 16, 20, 24, 28, 32, 36 and 40 are multiples of 4.

4 is a factor of all multiples of 4 because all the multiples of 4 can be divided exactly by 4.

The first multiple of 4 is 4.

The second multiple of 4 is 8.

The third multiple of 4 is 12.

⋮

The tenth multiple of 4 is 40.

$$\begin{array}{ccccc} 1 \times 3 = 3 & 2 \times 3 = 6 & 3 \times 3 = 9 & 4 \times 3 = 12 & 5 \times 3 = 15 \\ 6 \times 3 = 18 & 7 \times 3 = 21 & 8 \times 3 = 24 & 9 \times 3 = 27 & 10 \times 3 = 30 \end{array}$$

$$\begin{array}{ccccc} 1 \times 5 = 5 & 2 \times 5 = 10 & 3 \times 5 = 15 & 4 \times 5 = 20 & 5 \times 5 = 25 \\ 6 \times 5 = 30 & 7 \times 5 = 35 & 8 \times 5 = 40 & 9 \times 5 = 45 & 10 \times 5 = 50 \end{array}$$

The multiples of 3 are 3, 6, 9, 12, (15), 18, 21, 24, 27 and (30).

The multiples of 5 are 5, 10, (15), 20, 25, (30), 35, 40, 45 and 50.

We say the common multiples of 3 and 5 are 15 and 30.