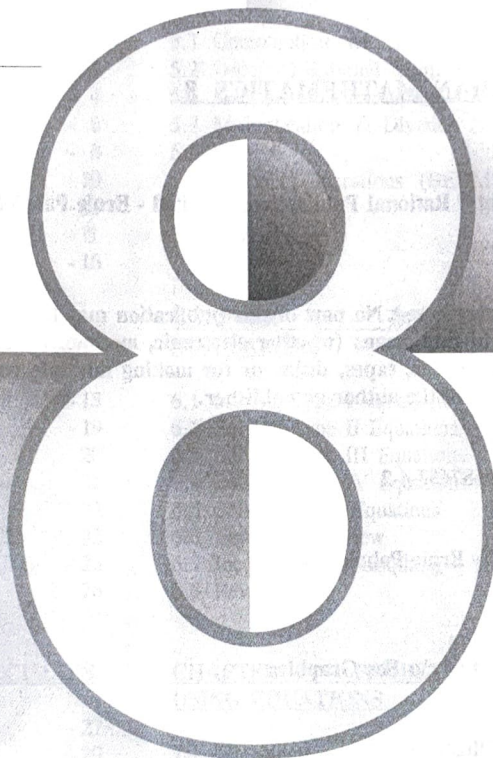


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CANADIAN MATHEMATICS

BY ERNIE PAHOLEK

RATIONAL
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EDMONTON, ALBERTA, CANADA

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CHAPTER 1 - WHOLE NUMBERS (W)

1.1 PLACE VALUE OF WHOLE NUMBERS

Numbers are written using the digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. The placement of these digits in any number determines the meaning and value of the number.

In the number 597 and 851, the fives look the same (**face value**) but the **place value** is different.

597 → the '5' in this number means that we have 5 hundreds

851 → the '5' in this number means that we have 5 tens

The value of each digit of a number written in **standard form** can be expressed when we write the number in **expanded form**.

The number 834 576 expressed in various forms is as follows:

Standard Form: 834 576

Expanded Form: $(8 \times 100\ 000) + (3 \times 10\ 000) + (4 \times 1000) + (5 \times 100) + (7 \times 10) + (6 \times 1)$

Word Form: eight hundred thirty-four thousand, five hundred seventy-six

A. State the place value of the '5' in each number below.

1. 78 513 _____

2. 96 000 500 _____

3. 5 000 732 _____

4. 5 004 _____

5. 85 723 _____

6. 34 975 _____

7. 235 971 _____

8. 539 _____

9. 9 763 852 _____

10. 765 832 086 _____

B. Write each of the following in expanded form.

1. 37

2. 5387

3. 4 000 001

4. 5 000 000

5. 205 603

6. 538

C. Write each of the following in standard form.

- $(4 \times 100\,000) + (5 \times 10\,000) + (3 \times 1000) + (8 \times 100)$
- $(6 \times 10\,000) + (3 \times 1000) + (8 \times 100) + (4 \times 10) + (3 \times 1)$
- $(9 \times 1\,000\,000) + (7 \times 1)$
- $(5 \times 1000) + (2 \times 100) + (3 \times 10)$
- $(6 \times 1) + (7 \times 10) + (8 \times 100) + (6 \times 1000) + (7 \times 10\,000)$
- $(1 \times 100\,000) + (3 \times 1000) + (2 \times 10)$
- $(0 \times 1) + (5 \times 10) + (3 \times 100) + (5 \times 1000) + (9 \times 10\,000)$
- $(3 \times 100\,000) + (3 \times 100) + (5 \times 1)$
- $(5 \times 10\,000) + (3 \times 100) + (4 \times 100\,000) + (6 \times 10) + (2 \times 1000)$
- $(3 \times 100) + (4 \times 1000) + (7 \times 1) + (9 \times 10) + (4 \times 1\,000\,000)$

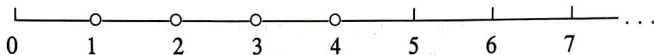
D. Write each of the following in word form.

- 3476
- 235
- 1 234 000
- 8 000 005
- 762
- 304
- 2867
- 25 060
- 37 824
- 5 000 349

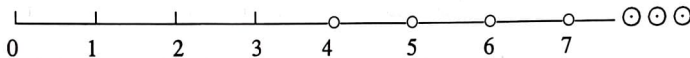
1.2 GRAPHING WHOLE NUMBERS

We can graphically represent any sets of whole numbers if we are given certain conditions that must be met. The examples below show how this is done.

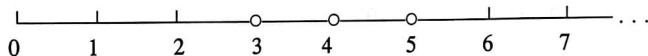
EXAMPLE #1: Graph the set of natural numbers less than 5.



EXAMPLE #2: Graph the set of whole numbers greater than 3.



EXAMPLE #3: Graph the set of whole numbers greater than 2 but less than 6.



A. Graph the following.

1. All the whole numbers.
2. The whole numbers greater than 3 but less than 9.
3. The whole numbers less than 6.
4. The set of whole numbers that also belongs to the set of natural numbers.
5. All whole numbers less than 1.
6. All whole numbers greater than 34.
7. The natural numbers less than 6.
8. The set of odd numbers less than 9.
9. The set of natural numbers greater than 4 but less than 8.
10. The set of even numbers greater than 24.