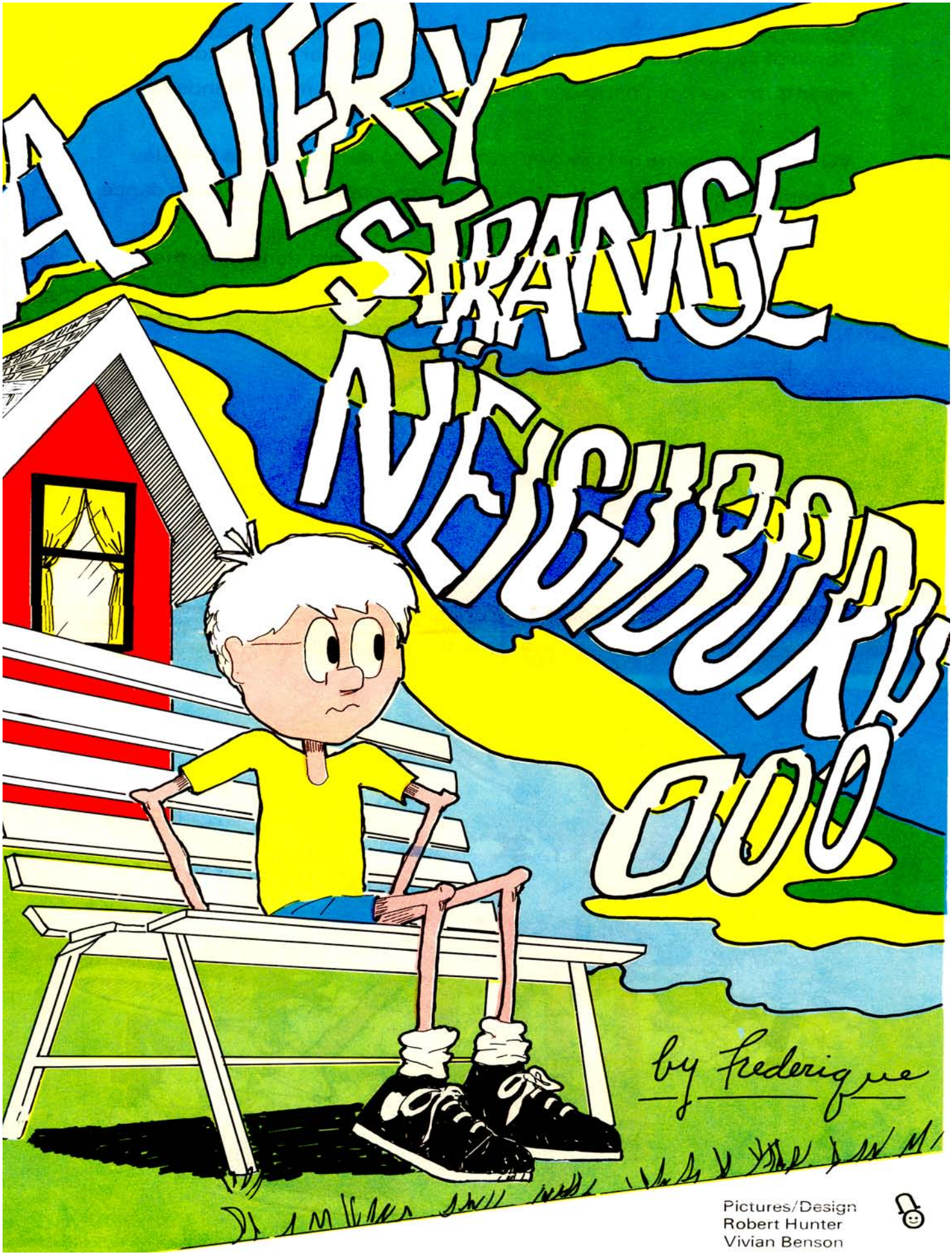

A VERY STRANGE NEIGHBOR!
by Frederique
Pictures/Design
Robert Hunter
Vivian Benson

Some of my best friends are numbers. Each year, for my birthday, my parents throw a big party and allow me to invite as many friends as I like.

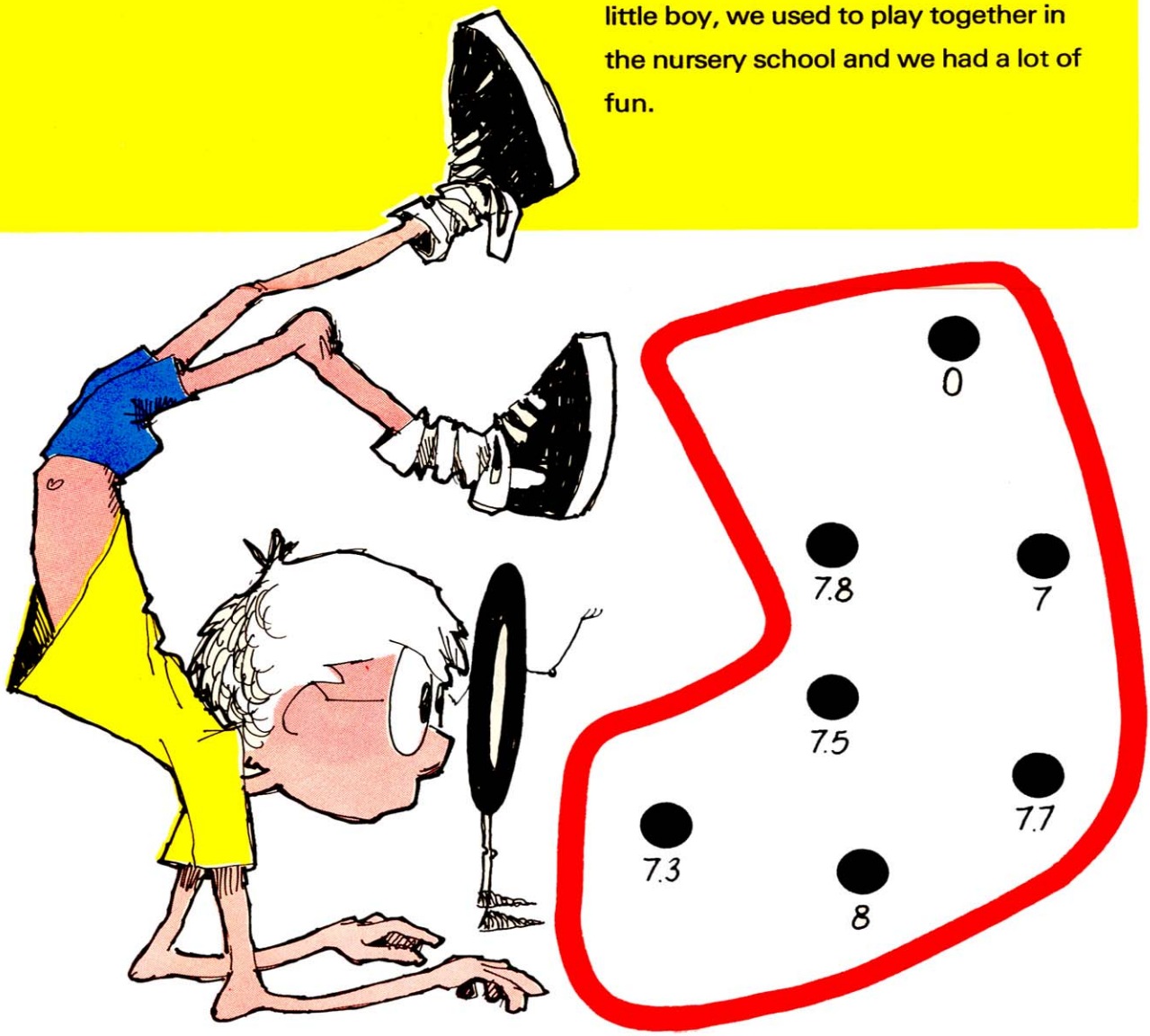
When I was 9 years old I invited all the whole numbers. As a birthday present they invented a new game that they called the +2 snake dance.

We spent the whole afternoon and part of the night dancing in the house and in the garden. I will never forget their marvelous gift.

Zero is my best friend. He is a lively, interesting fellow. He likes talking, reading, joking around, playing and traveling. But most of all he likes meeting new people. He is interested in everything and everybody.

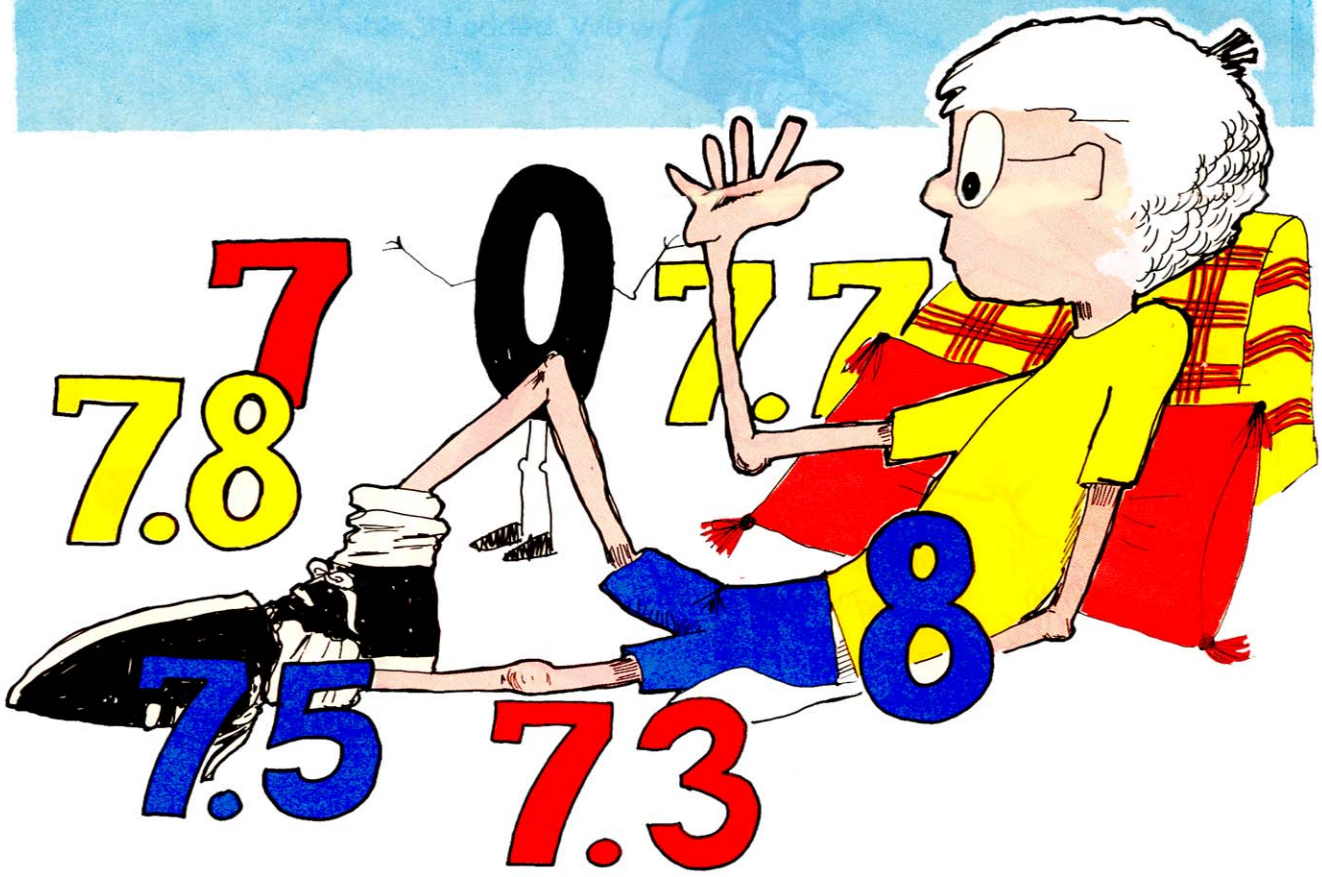
Last Sunday, Zero invited me to his place to play with some of his friends. Here they are inside this red string.

I was happy to meet 7 and 8, whom I had known for a long time. When I was a little boy, we used to play together in the nursery school and we had a lot of fun.



But it was the first time that I had met
7.3 7.5 7.7 and 7.8.

I am very shy. Each time I meet new people, I feel uneasy. Fortunately, Zero is a cheerful fellow. Thanks to him, we got to know each other very quickly. After a few minutes, we were all chatting together and I felt completely at ease.



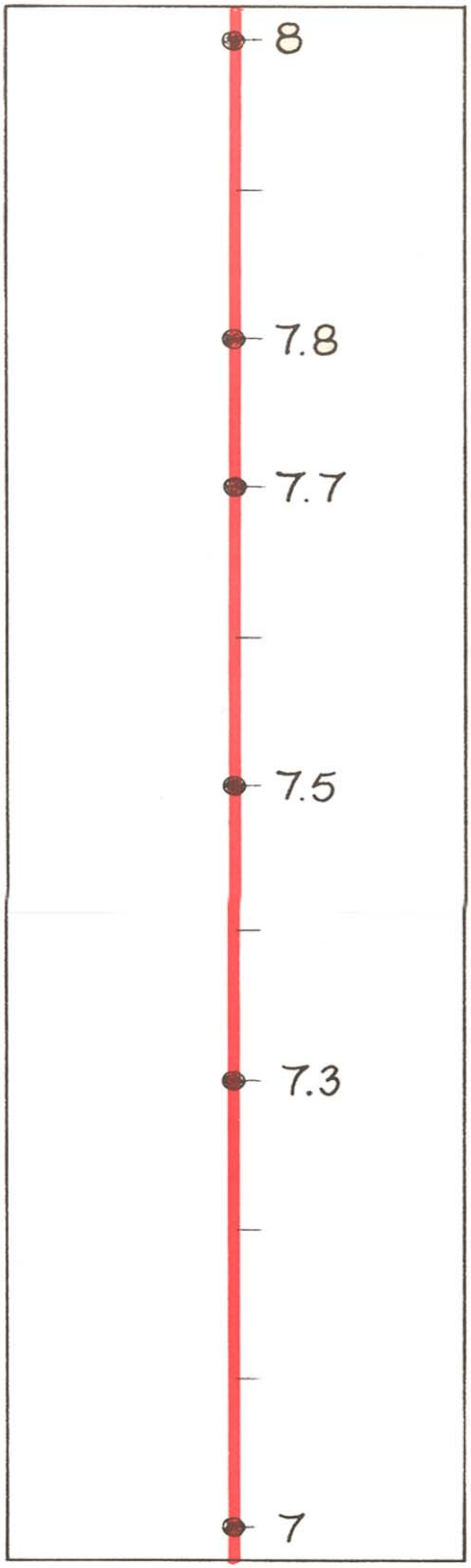
"With the exception of Zero, we all live on the same block," explained 7 and 8. "The houses of our friends 7.3 7.5 7.7 and 7.8 are in between our houses, as you can see from this picture."

"It must be fun to live so close to your friends," I observed. "You must have lots of opportunities to play together."

"You're right," they agreed. "There's always a lot of activity on our block. Almost every day, we meet some new neighbors. Can you guess the names of some of them?"
I look at their picture thoughtfully. "It doesn't seem to be very difficult," I said.

"Certainly, 7.1 7.2 7.4 7.6 and 7.9 must be among your neighbors."

I completed the drawing.

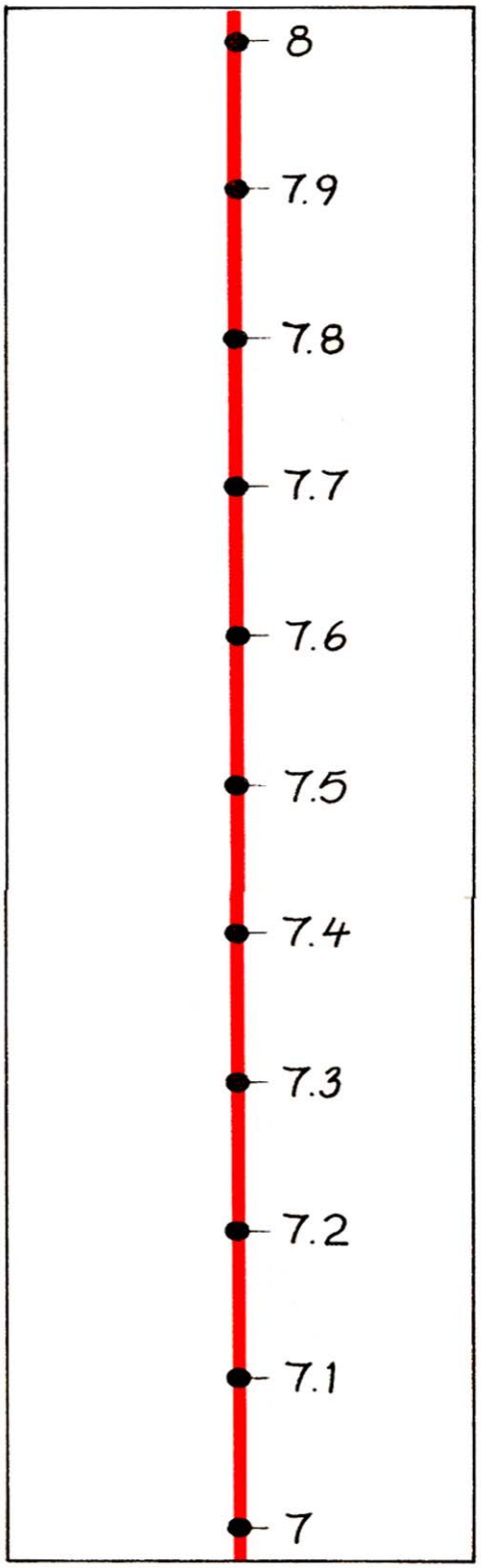


"Very well done," they said. "All these numbers are good friends of ours."

Looking at 7.7 and 7.8, I added, "It must be pleasant to live so close to each other. You can easily talk from one backyard to the other."

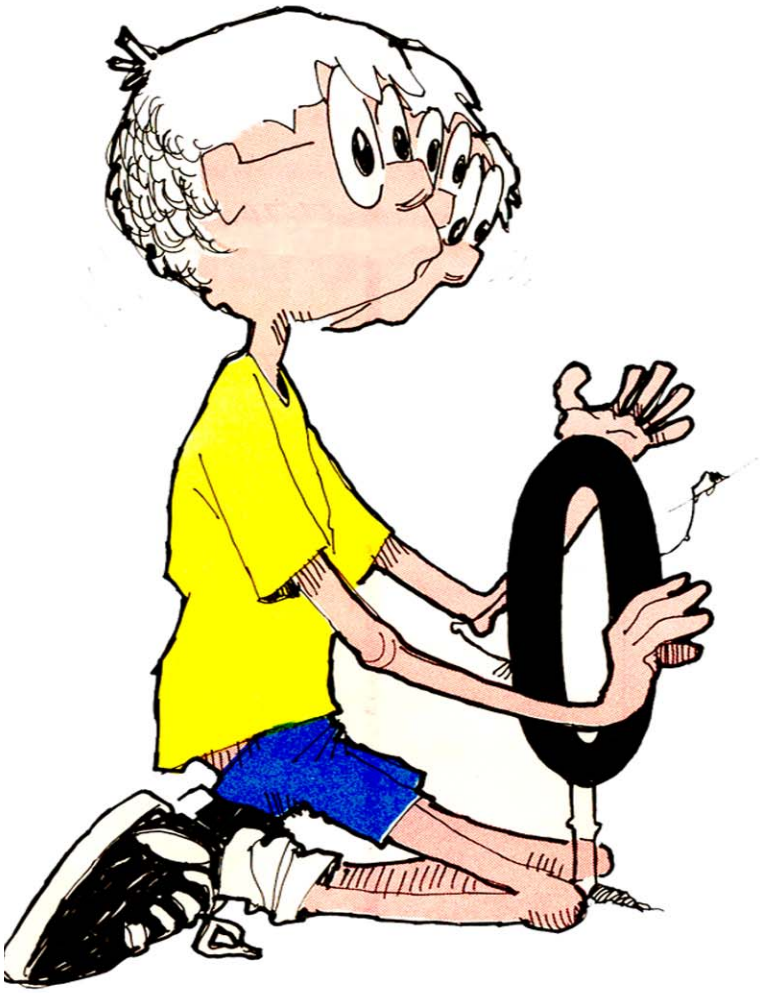
"But that is not true," chorused 7.7 and 7.8 with a smile. "You see, our backyards are not at all close to each other. There are a lot of houses between ours."

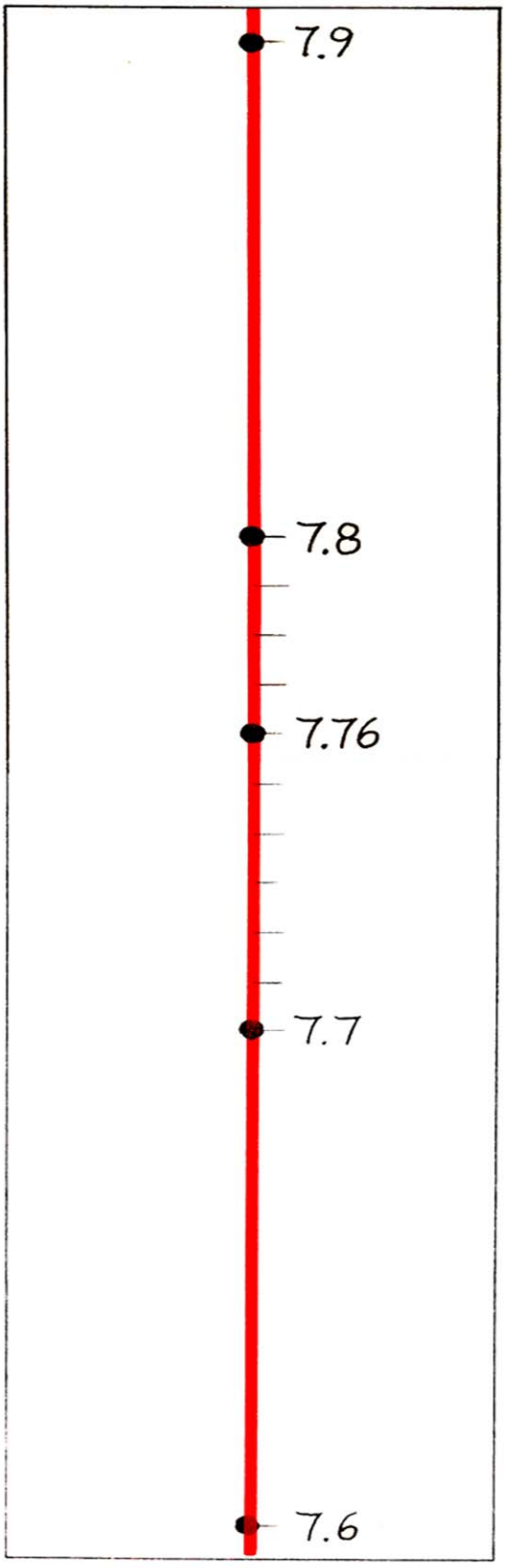
I was very surprised. "You must be joking," I said. "I don't understand how that could be possible."



"Look at this map of a part of our block," they said. "To make the picture clearer, we have chosen a larger scale. We have also identified the house of our friend 7.76."

"Can you show me where the house of 7.73 is?" asked Zero.





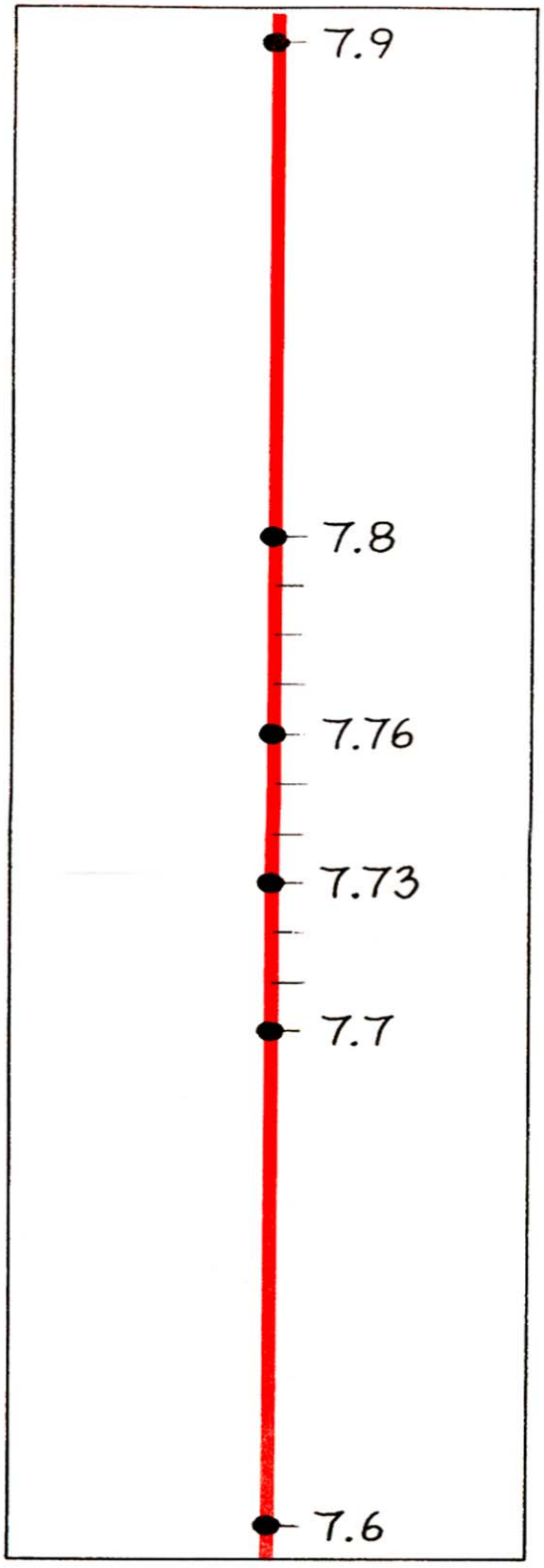
TRY TO SOLVE THE PROBLEM YOURSELF BEFORE READING THE NEXT PAGE.

I was silent for a long time. Suddenly, I shouted, "I know how to do it; 7.73 lives between 7.7 and 7.76. His house is exactly in the middle."

I drew a dot for it.

"I can also easily guess the names of all your other neighbors," I added, and I proudly wrote: 7.71 7.72 7.74 7.75 7.77 7.78 and 7.79.

"Now I understand why you cannot talk from one backyard to another," I said to 7.7 and 7.8. "There are exactly 9 houses between your houses."

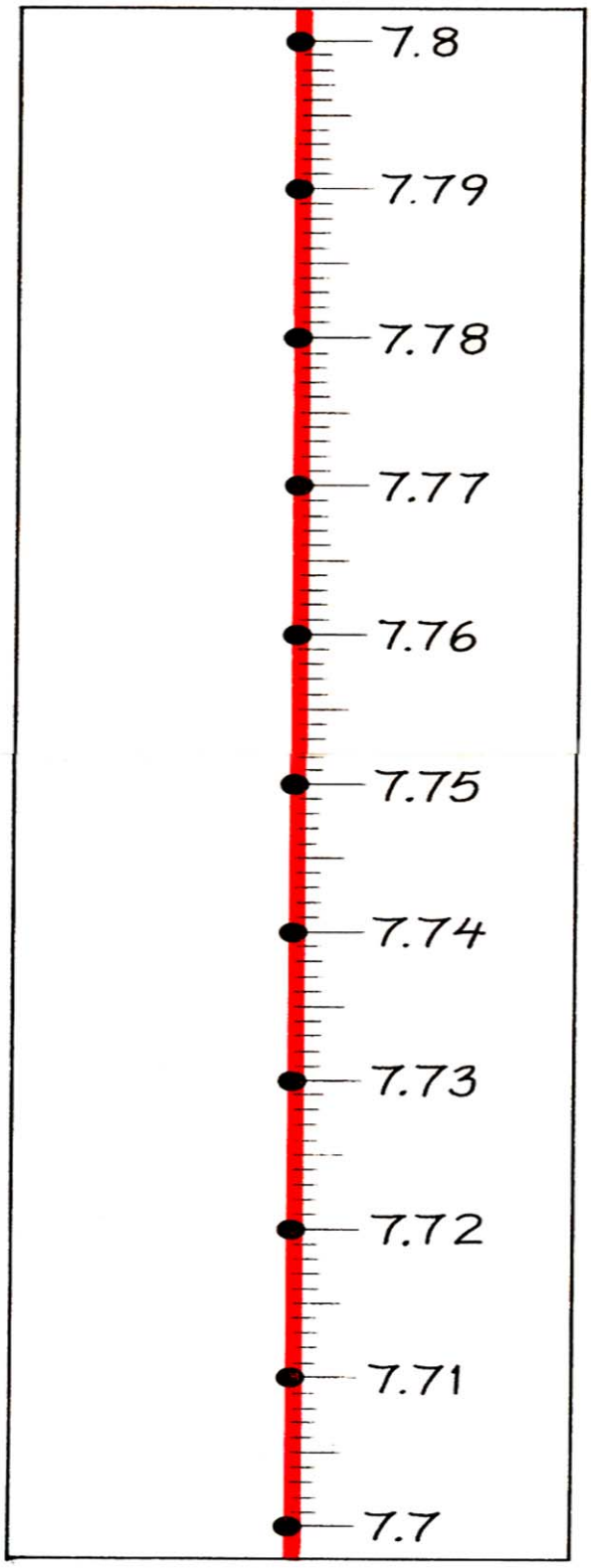


"You still don't seem to understand the marvelous structure of our block," they replied with a chuckle. "It is true that the 9 numbers 7.71 7.72 7.73 7.74 7.75 7.76 7.77 7.78 and 7.79 live between our two houses. But a lot of other numbers have houses there too. In fact, there are so many of them that we have never been able to count all of them."

They drew this picture.

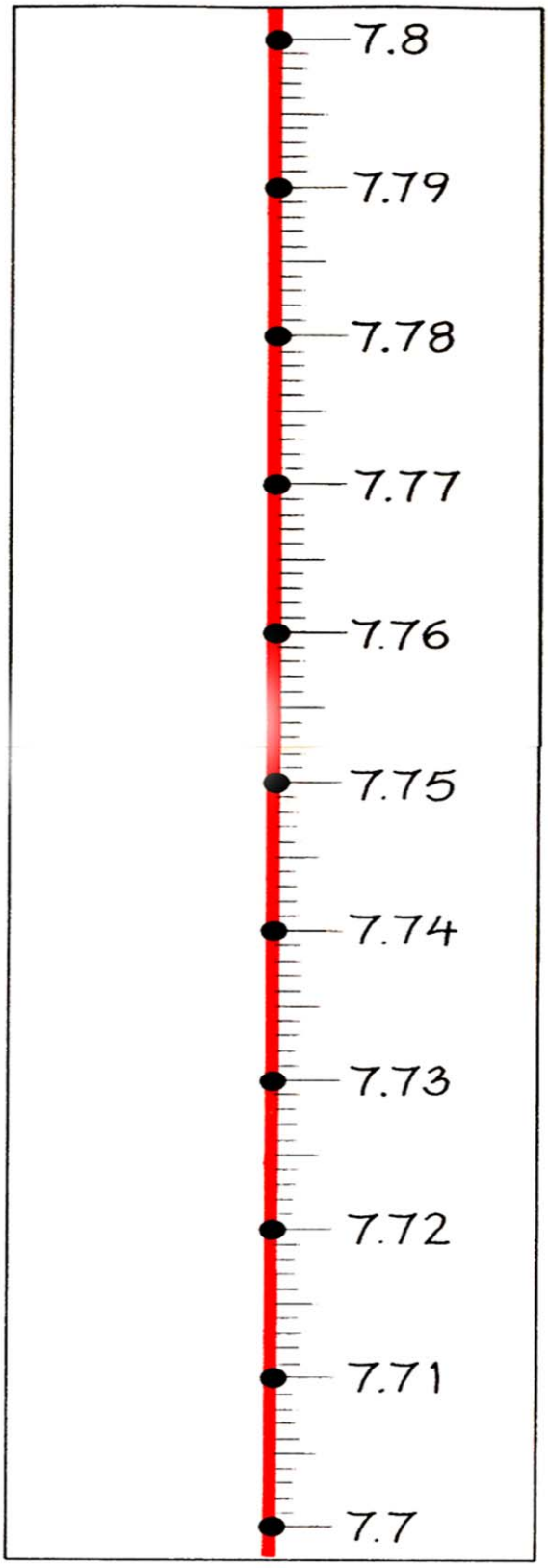
"Can you guess the names of some of our other friends who live between our two houses?" they asked.

As I looked at this drawing, I began to feel a little dizzy.

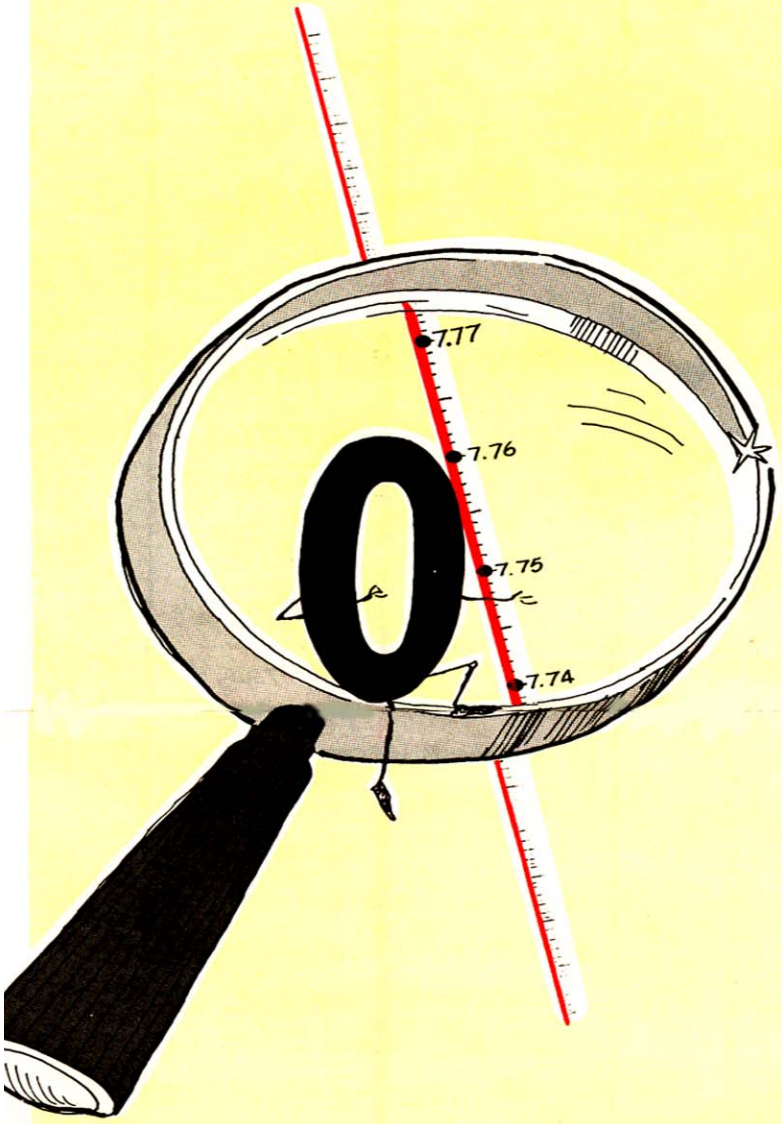


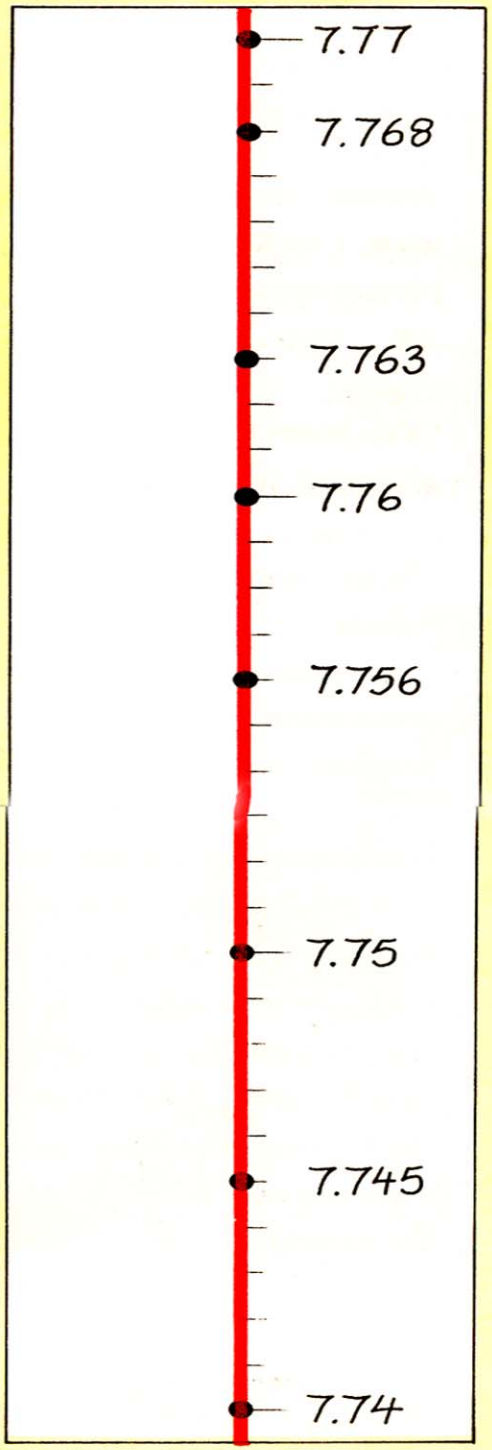
'9 houses between 7.7 and
7.71," I hummed, "9 houses
between 7.71 and 7.72,
9 houses between 7.72 and
7.73, again and again 9 houses."
I counted about 100 houses.
"This is crazy," I said to myself,
thinking of the poor mailman
who has to deliver the mail to
his block.

"Try to write the names of
some of these new neighbors,"
7.7 and 7.8 asked again.



I took my magnifying glass and looked at this part of their map.



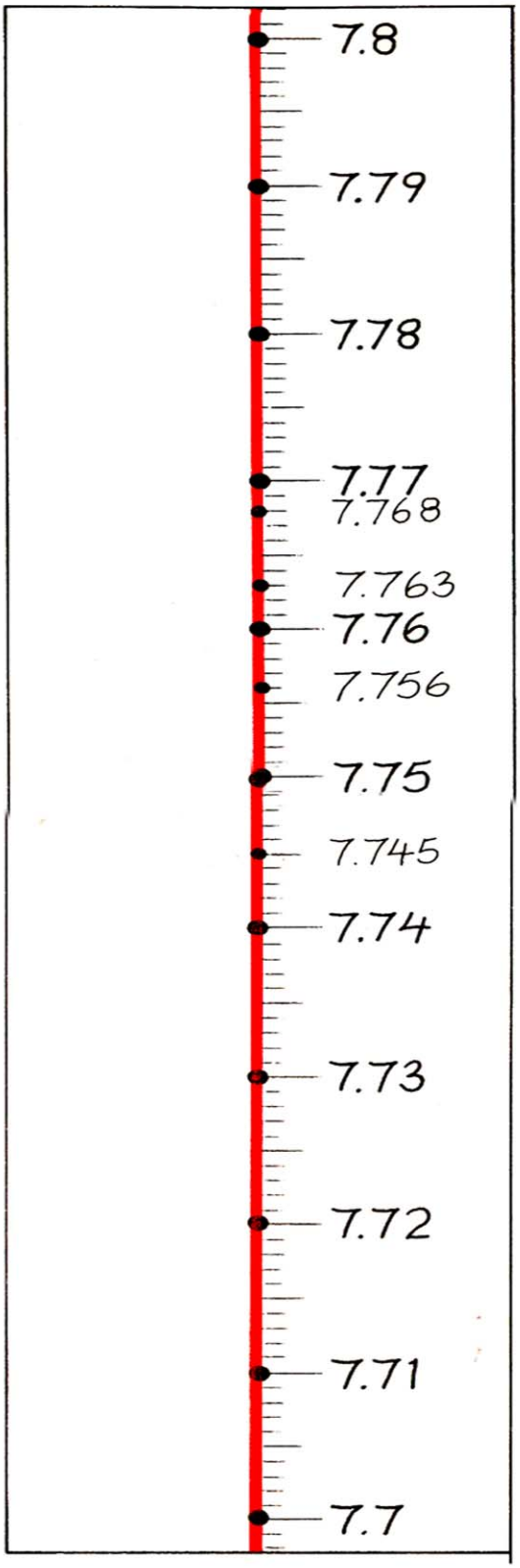


"It doesn't seem to be difficult to find some new names," I said to myself. I wrote thoughtfully:

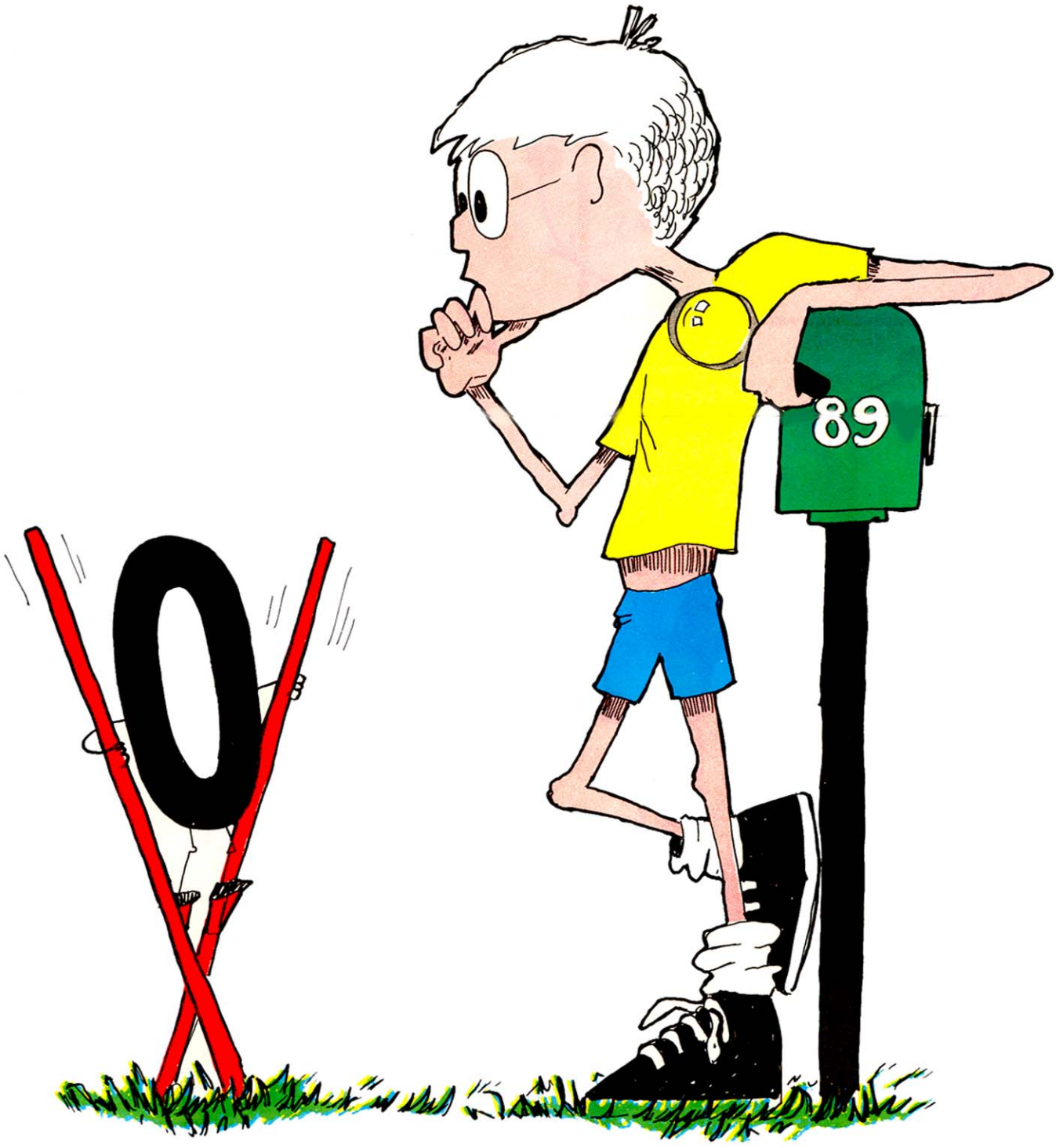
Without using my magnifying glass, I looked at the whole picture drawn by 7.7 and 7.8. I felt very uneasy.

"You seem troubled," observed Zero.

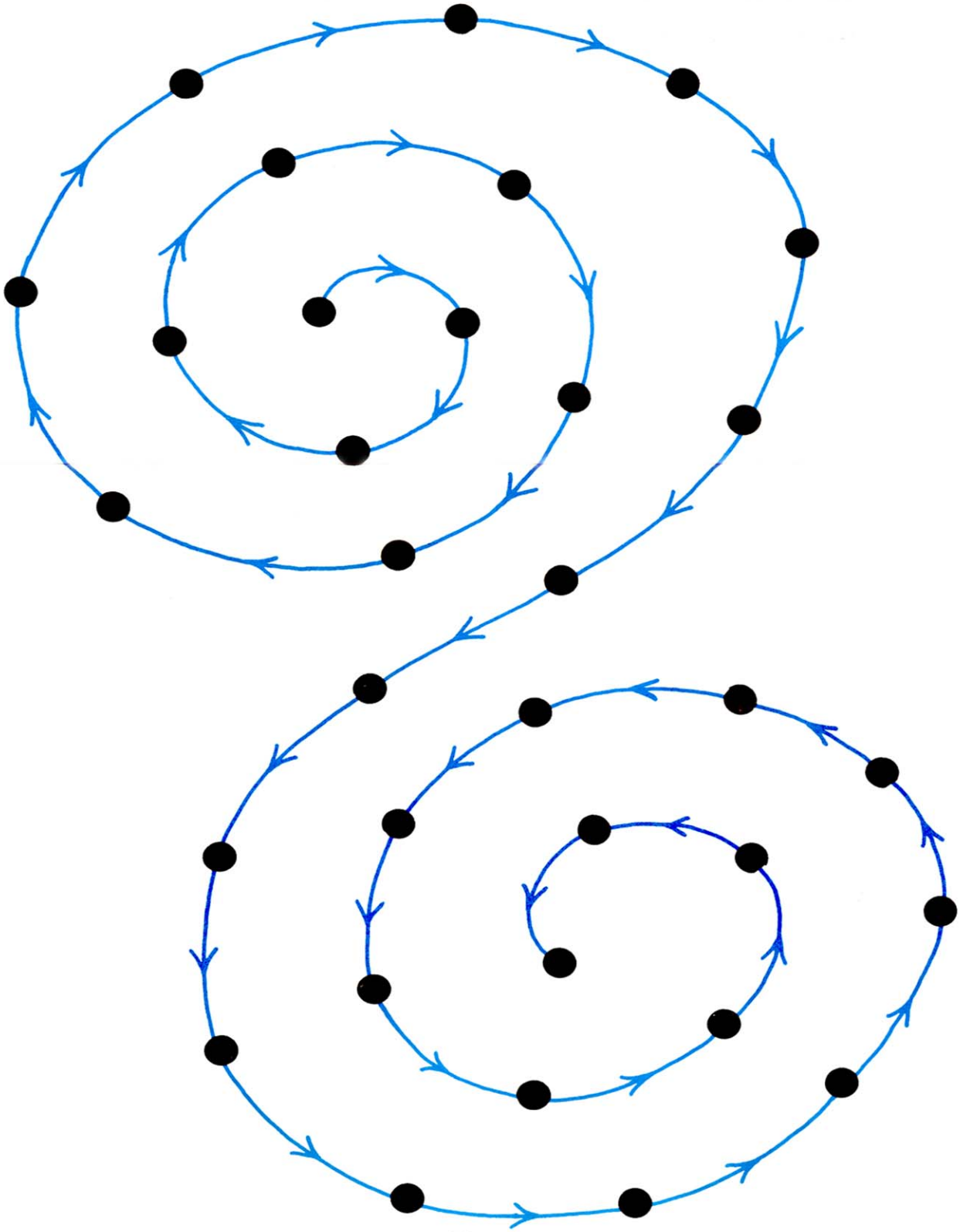
"You're right," I said. "Our friends 7 and 8 live on a very strange block. I don't understand how it is ever possible to draw a complete map of their block. Each time I think that two numbers live very close to each other and that they can talk from one backyard to another, they convince me that at least 9 new numbers live between them. I don't see how this story can ever end. It is frightening."



"I understand why you are so amazed," said Zero. "The little town where you live has only 50,000 inhabitants. In your block, there are exactly 23 houses. From your backyard, you can easily talk with your two next door neighbors."

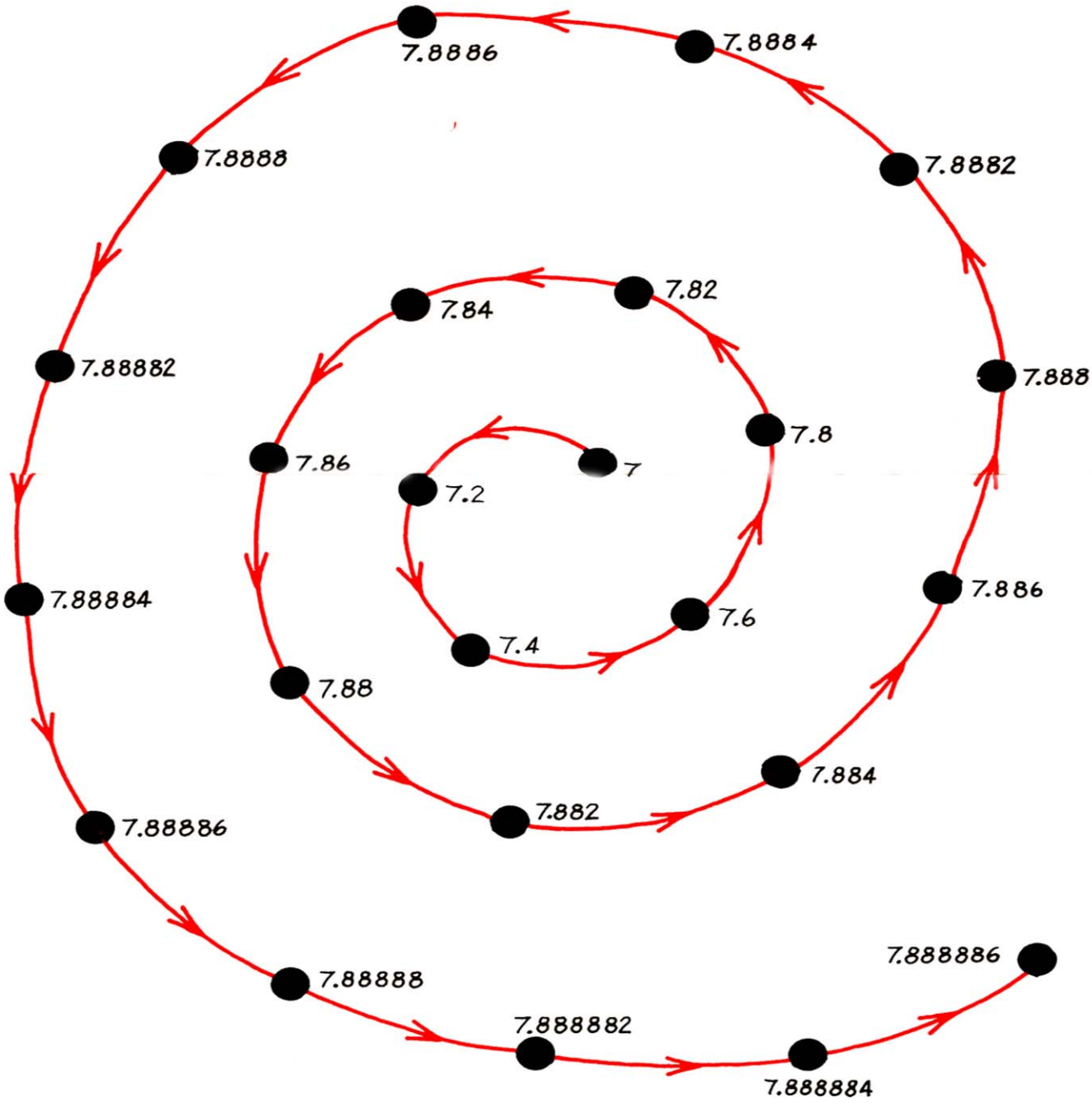


"When you organize a snake dance with the children of your neighborhood, there is always a first dancer and a last one.

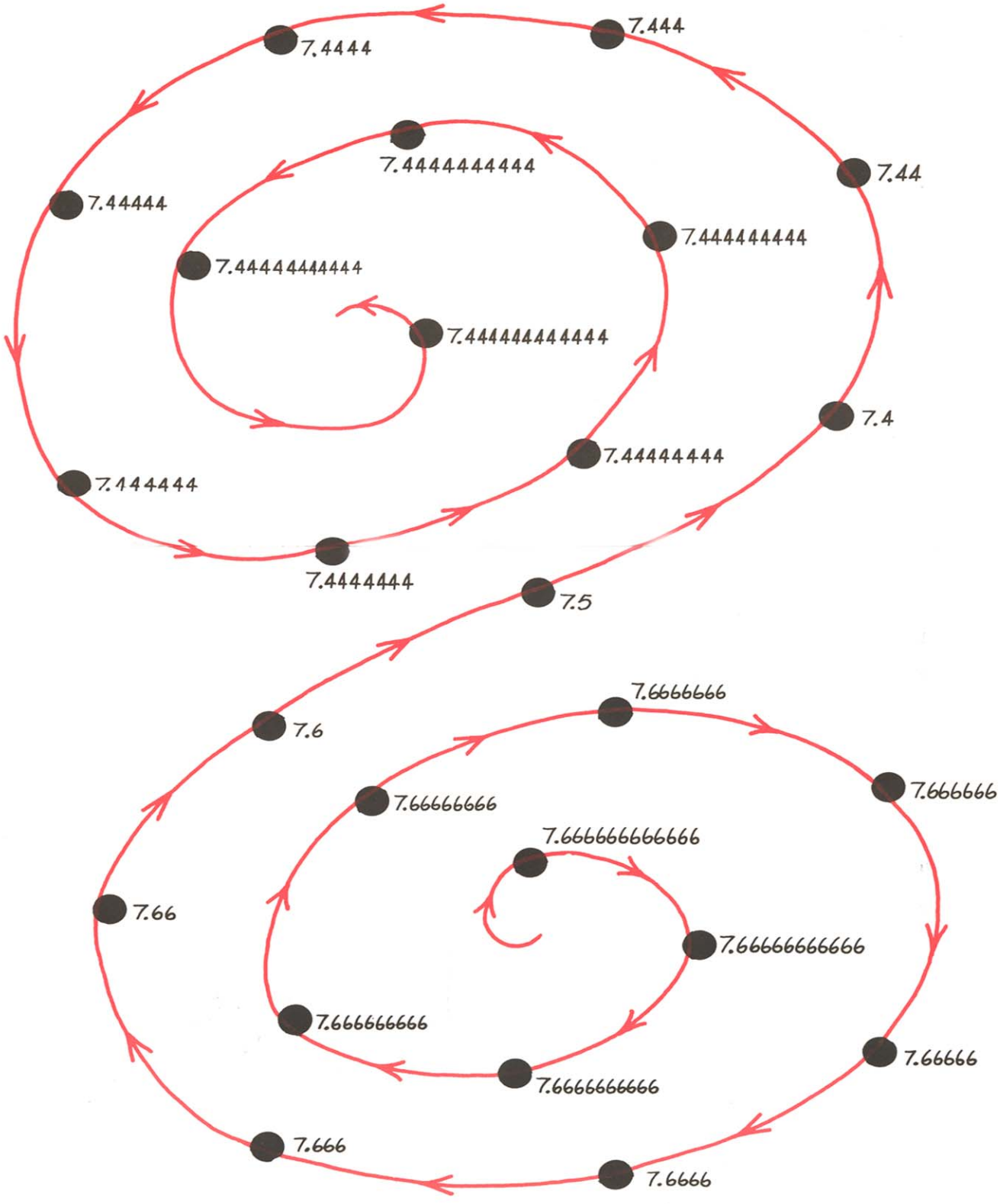


"In the block where our friends 7 and 8 live, the situation is completely different and much more interesting. The numbers can organize many kinds of snake dances.

The picture on this page shows you a game they were playing this morning: 7 is the leader, and the first dancer. But there is no last dancer."



"Just the other day, they invented
another marvelous snake dance which had
neither a first dancer nor a last one.
You can imagine many other examples."



"In the block where our friends 7 and 8 live, the neighborhood of each house is really strange. Let us pretend you are the number 7.5.

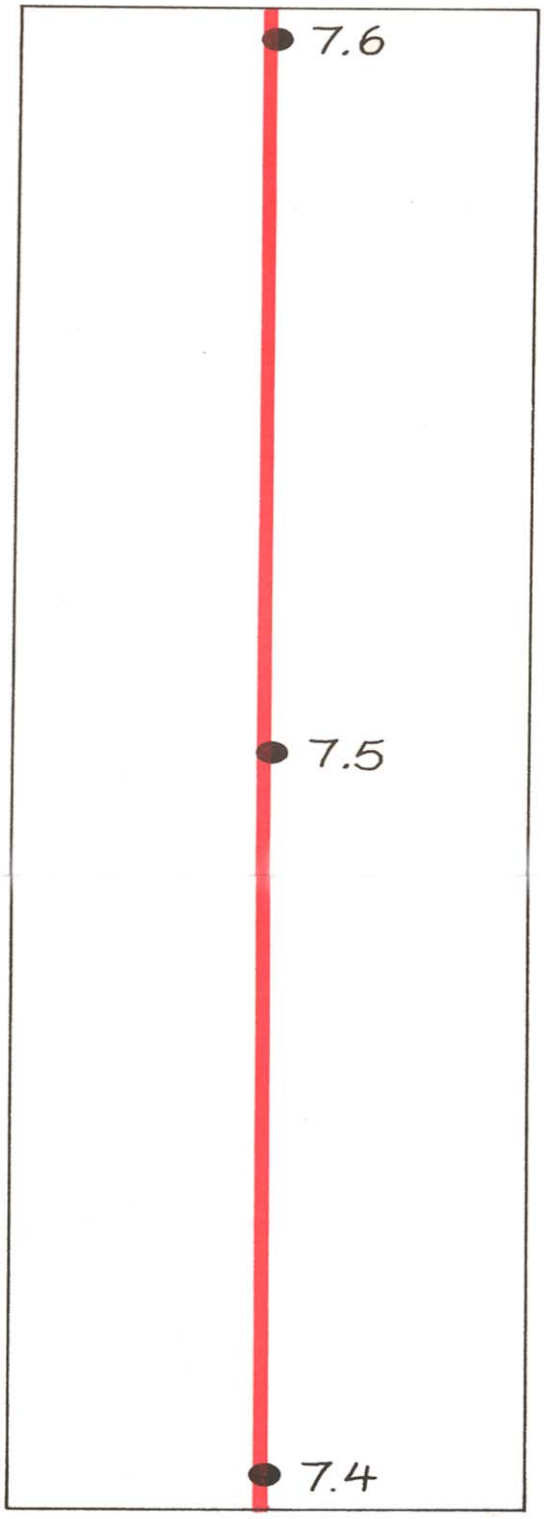
Choose two neighbors so that your house is between theirs."

"7.4 and 7.6," I suggested immediately.

"That is a good idea," said Zero. "Your house would be exactly in the middle.

"Can you show me two other houses that are closer to your house, one on each side of it?"

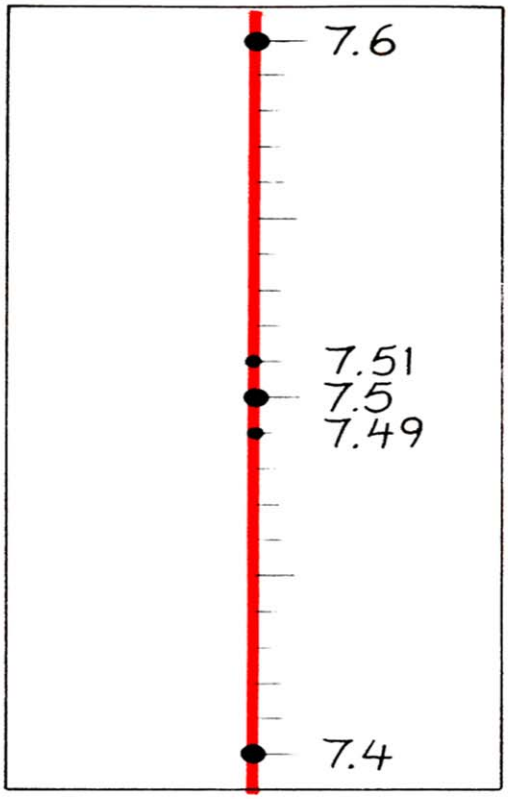
"They are not easy to find," I said to myself. I thought for a long time. Suddenly I shouted, "I know how to do it!"



TRY TO SOLVE THIS PROBLEM TOO BEFORE TURNING THE PAGE.

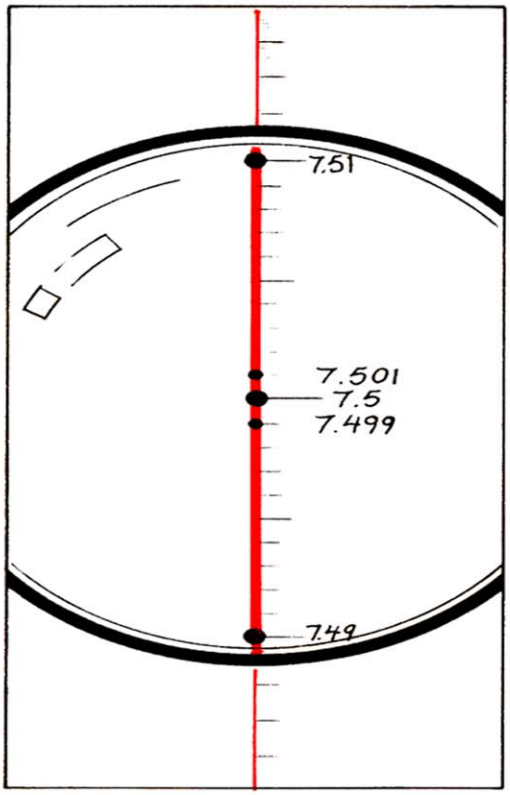
Drawing the picture, I said, "I will choose the houses of 7.49 and 7.51. Then I shall again be exactly in the middle."

"That game is a lot of fun, isn't it?" observed Zero. "Now you can go on by yourself."



Taking my magnifying glass I drew:

"7.499 and 7.501 live very close to your house," agreed Zero. "Once again, you are exactly in the middle."



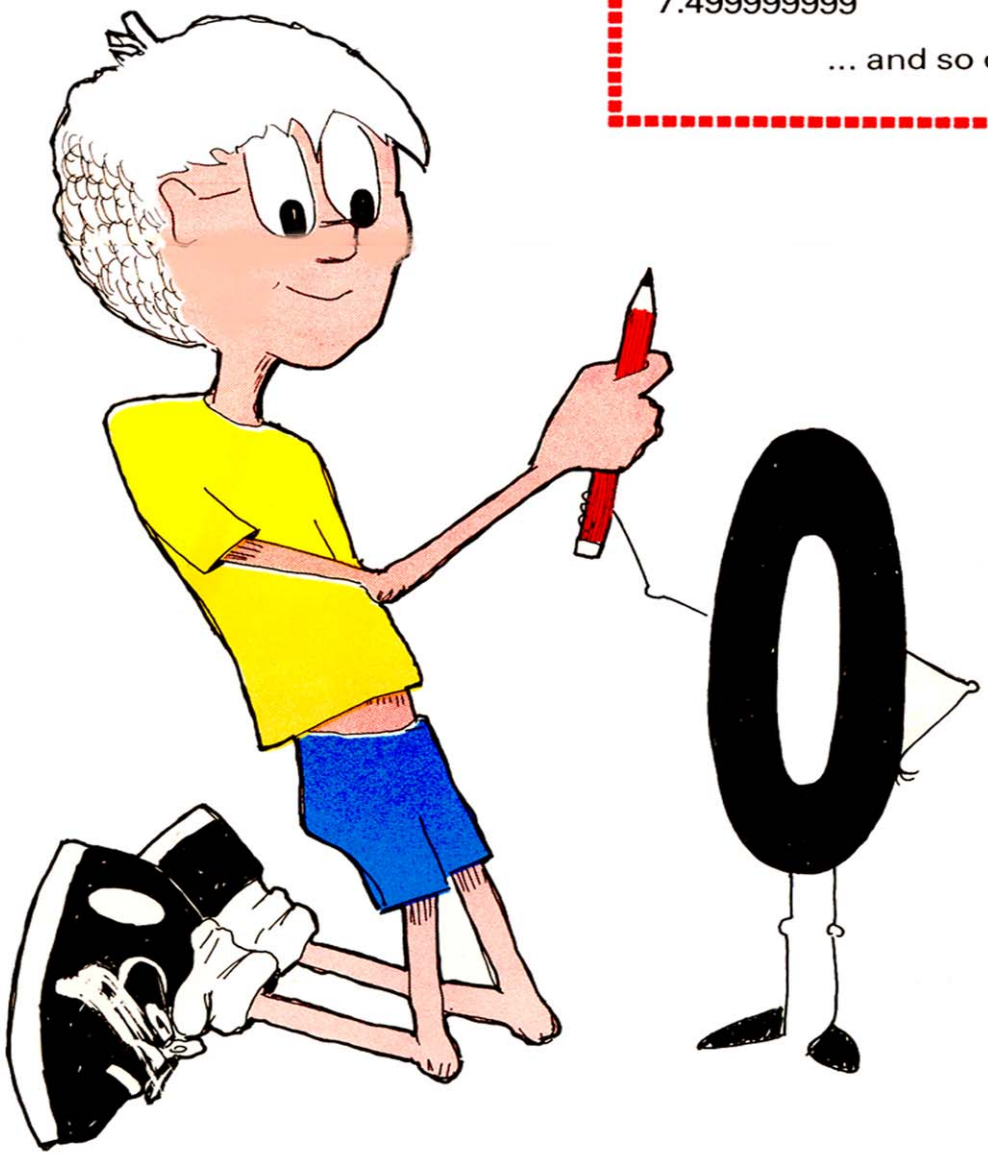
"Even with a magnifying glass, it's getting difficult to put dots on the map for the houses of new numbers who live closer and closer to my house," I said.

"That is right," agreed Zero. "So, instead of drawing their houses, just try to write down their names from now on."

"That's easy! Here they are:

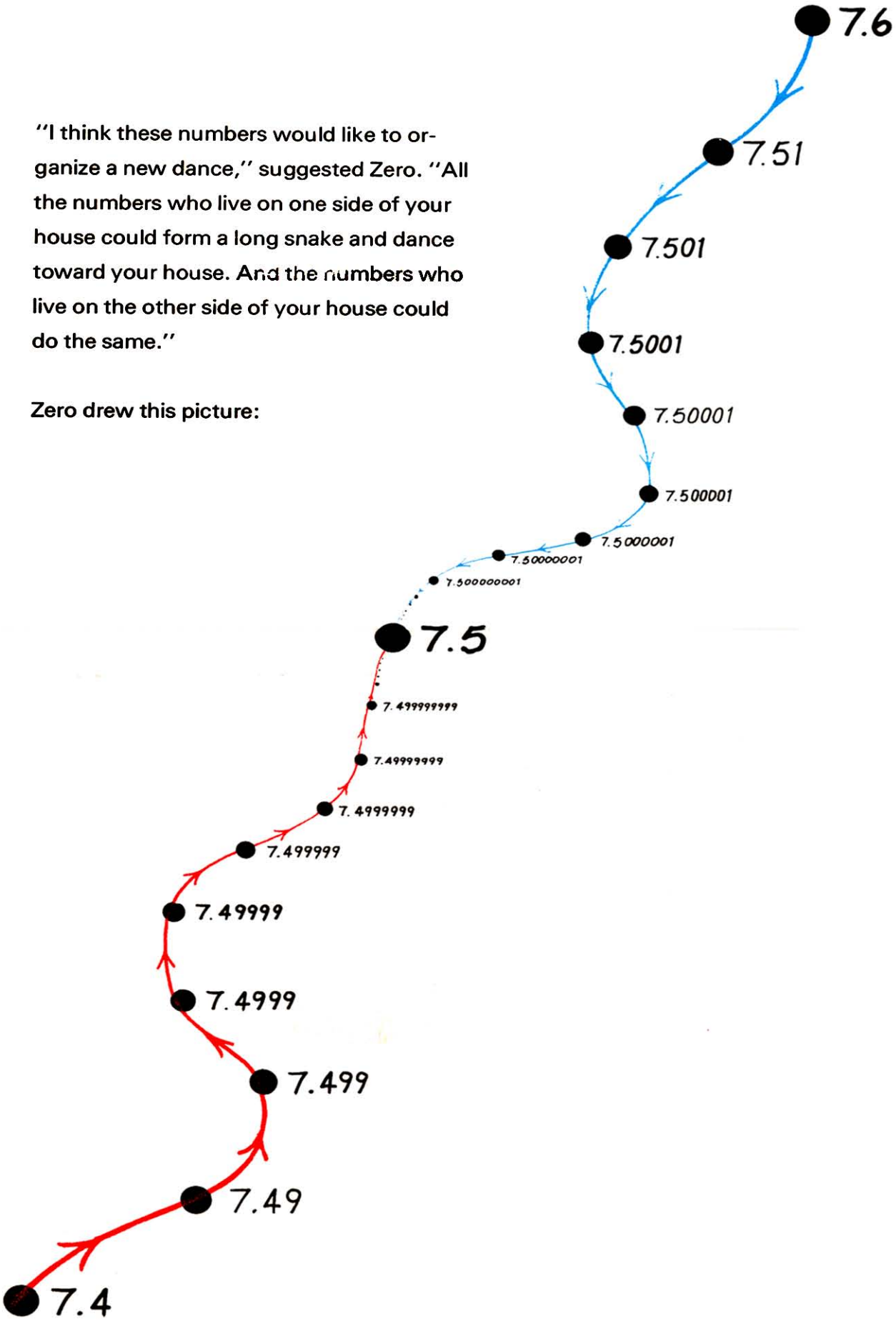
7.4	7.6
7.49	7.51
7.499	7.501
7.4999	7.5001
7.49999	7.50001
7.499999	7.500001
7.4999999	7.5000001
7.49999999	7.50000001
7.499999999	7.500000001

... and so on."



"I think these numbers would like to organize a new dance," suggested Zero. "All the numbers who live on one side of your house could form a long snake and dance toward your house. And the numbers who live on the other side of your house could do the same."

Zero drew this picture:



"What a marvelous drawing," I said. "The neighborhood of each house in the block in which our friends 7 and 8 live is certainly very strange. After looking at your picture, I now understand very well that the number 7.5 has no next-door neighbors. What a mysterious street! If I were the mailman in charge of this block, I don't know how I could do my job."

BIG
BANG
THEORY

The next Sunday, my friend Zero woke me up early in the morning. He was very excited. "It seems that something peculiar is going on in the block where 7 and 8 live," he told me. "Last night, the police came to the house of our friend 7.5. They have been picking up strange radio signals which seem to be coming from a location near 7.5's house."

I listened in amazement. "What kind of signals?" I asked.

"Very mysterious ones," explained Zero. "Sometimes the police hear a strange song with only two tones:

bing bang
bing bing bang
bing bing bing bang
bing bing bing bing bang
bing bing bing bing bing bang

At other times, they hear some odd messages."

THE MESSAGES

I am unhappy. Nobody likes me.

I have no friends. I am very lonely.

My name is very long, difficult to write and to pronounce, and not easy to remember.

My teacher ignores me. He always forgets that I am in the classroom. He never remembers my name.

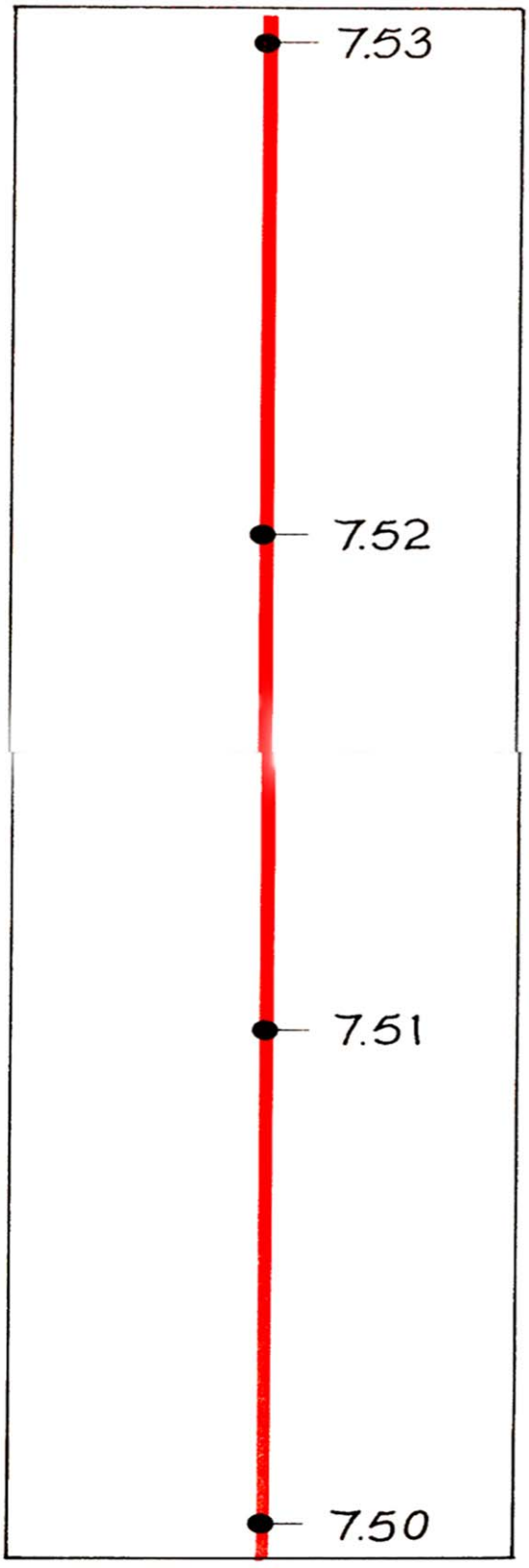
The mailman is always putting other people's letters in my mailbox. He doesn't seem to be able to read my name.

A few minutes later, we received a phone call from our friend 7.6.

"The police have come to my house, too," he said. "I told them the signals were not coming from my house. Now the police seem to be sure that the mysterious radio is hidden somewhere between my house and 7.5's."

Immediately afterwards 7.53 called us.

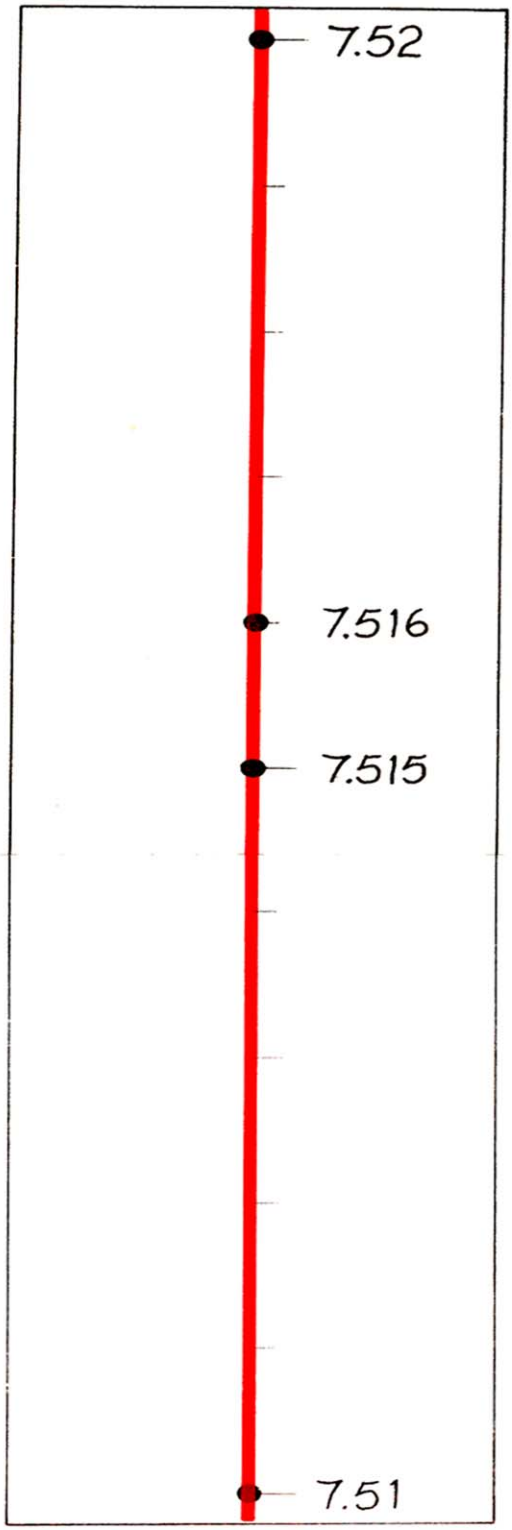
"The police went to 7.52's house. I thought that they would come to my house. But I just learned they are now visiting some houses between 7.51 and 7.52."



The doorbell rang. It was 7.5. He was very excited.

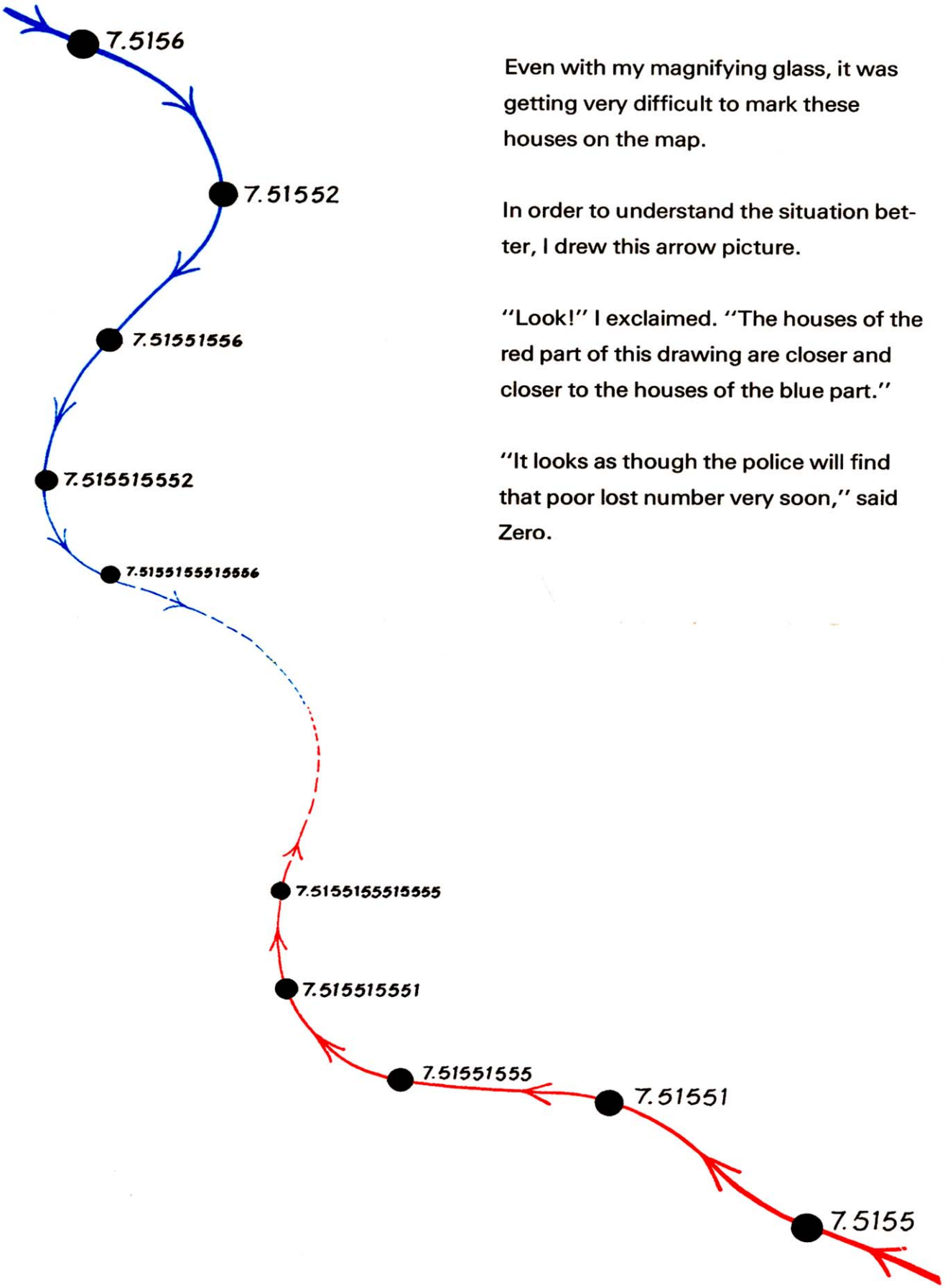
"The police seem to be getting closer," he told us. "They have now gone to 7.515's house, 7.516's house, and some houses in between."

Every time we received a new piece of information, we tried to identify where the police were on the map.



They searched between

7.5155	and	7.5156
7.51551	and	7.51552
7.51551555	and	7.51551556
7.515515551	and	7.515515552
7.5155155515555	and	7.5155155515556
7.51551555155551	and	7.51551555155552



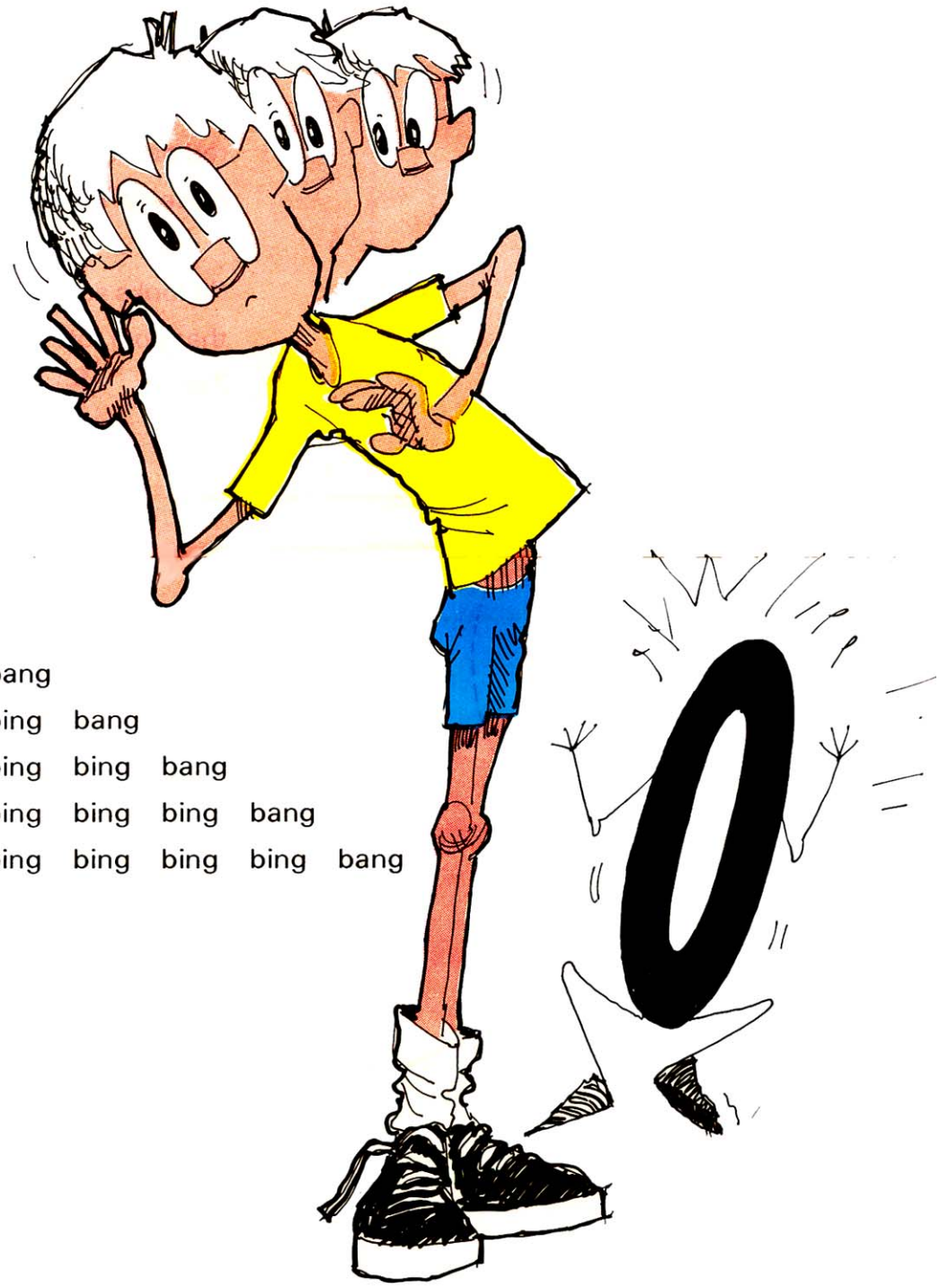
Even with my magnifying glass, it was getting very difficult to mark these houses on the map.

In order to understand the situation better, I drew this arrow picture.

"Look!" I exclaimed. "The houses of the red part of this drawing are closer and closer to the houses of the blue part."

"It looks as though the police will find that poor lost number very soon," said Zero.

Just at that moment, we picked up the mystery signals on our own radio.
At first we only heard the strange song that Zero had already told us about:



bing bang
bing bing bang
bing bing bing bang
bing bing bing bing bang
bing bing bing bing bing bang
bing bing bing bing bing bing bang
bing bing bing bing bing bing bing bang

Then a very sad voice cried,

"I feel so lonely. Will you ever find me? Why don't you see me? I live in a house like everybody else. You are getting nearer to my house. Listen carefully to my song. Try to understand its code. It will help you to discover my name and my house. Please, you will have to be more clever than my teacher, more clever than the mailman. Without any friends, I am completely lost."

Zero was thinking silently. Suddenly, he shouted, "I understand what is happening to this poor fellow. I believe I have guessed his name: ' bing ' must stand for ' 5 ' and ' bang ' for ' 1. ' So he is called 7.51551555155551555551 and so on. Unfortunately for him, his name never ends... each time there is one more ' 5 ' than there was the time before."

"That explains all his difficulties with his teacher and the mailman," I observed.

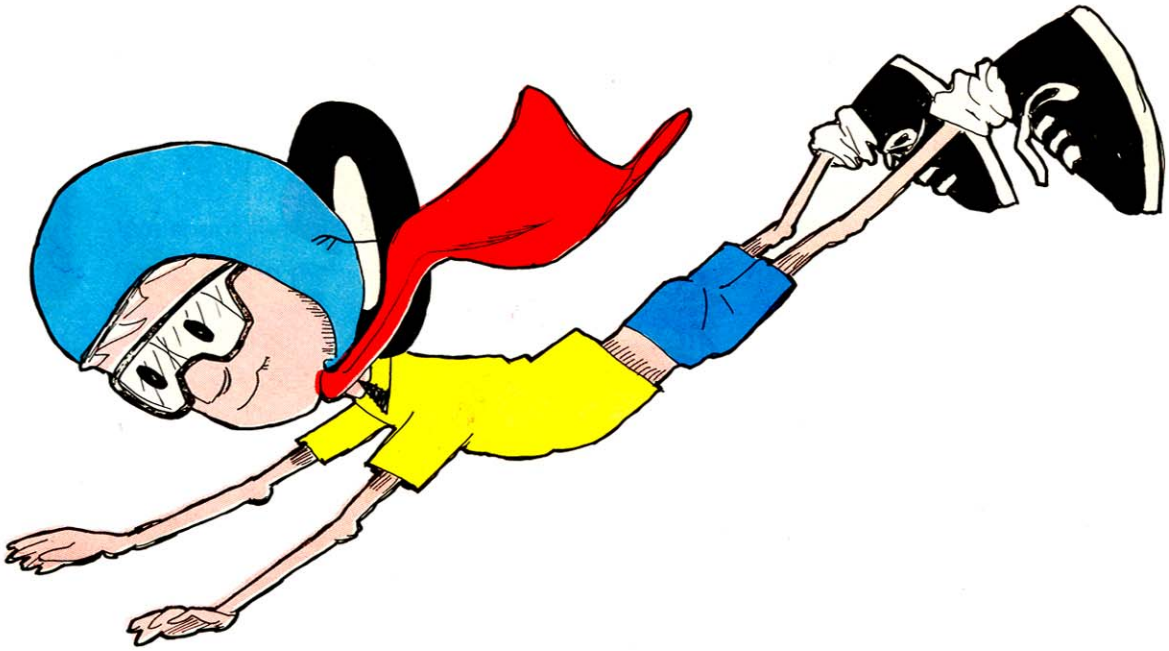
We phoned our friend 7.5 immediately to tell him our discovery.

"Go to the house of this strange number right away," said Zero. "He will be so happy to meet a friendly neighbor. Persuade him to tell the police that it's no longer necessary to search for him. Help him to explain why he has been lost for so long. You are a good talker."

"Let us know what happens as soon as possible," I added. We waited impatiently.

At the end of the afternoon, we heard a lot of noise in the street. We ran to the window and saw a big parade. The number 7.51551555155551555551 and so on was being carried triumphantly by our friends 7 7.5 7.6 and 8. A lot of people were following them, singing the famous "Bing-Bang" song.

With a sigh of relief, we cheered them on.



The numbers 7 and 8 live in "A Very Strange Neighborhood." No sooner does the hero of this story decide that two numbers live next door to each other than he is shown that in fact between their houses there are at least nine others. As the story proceeds, the reader begins to appreciate just how awesome a concept this is; one feels quite dizzy just looking at the pictures of the street on which 7 and 8 live.

The story of this strange neighborhood continues with the tale of the mystery radio signals. The police become involved in the search for the originator of these signals, but it is Zero who eventually deciphers what they mean, and hence manages to locate a sad number, the sole source of whose troubles being that he is irrational (in the mathematical sense, that is).

The reader is involved in this story both by a plot loaded with suspense and by periodic questions. Thus he meets, perhaps for the first time, some of the decimal friends of 7 and 8, and witnesses some of the very strange things that can happen in that very strange neighborhood.

Edward Martin

Stories by Frederique

Ages 5 to 8
The Playful Numbers
The Baby Is Born
81 Roses
One Out of Seven
I Am a Very Happy Boy
The Little Dreamer
Two by Two
The Weird Story of 24
Where's My Nose?
The Happy Puppet
The Magic Box
Summer School in the Old Days

Ages 8 to 12
The Little Donkey
Singing Friends
Dancing Friends
I Am Not My Name
The Square Trap
Nabu Wins an Award

Ages 10 to 14
The Hidden Treasure
A Valentine Mystery
Election in the Number World
A Very Strange Neighborhood

Comprehensive School Mathematics Program