

Excerpt from *The Phantom Tollbooth*

Up he went – very quickly at first – then more slowly – then in a little while even more slowly than that – and finally, after many minutes of climbing up the endless stairway, one weary foot was barely able to follow the other. Milo suddenly realized that with all his effort he was no closer to the top than when he began, and not a great deal further from the bottom. But he struggled on for a while longer, until at last, completely exhausted, he collapsed onto one of the steps.

“I should have known it,” he mumbled, resting his tired legs and filling his lungs with air. “This is just like the line that goes on forever, and I’ll never get there.”

“You wouldn’t like it much anyway,” someone replied gently. “Infinity is a dreadfully poor place. They can never manage to make ends meet.”

Milo looked up, with his head still resting heavily in his hand; he was becoming quite accustomed to being addressed at the oddest times, in the oddest places, by the oddest people – and this time he was not at all disappointed. Standing next to him on the step was exactly one half of a small child who had been divided neatly from top to bottom.

“Pardon me for staring,” said Milo, after he had been staring for some time, “but I’ve never seen half a child before.”

“It’s .58 to be precise,” replied the child from the left side of his mouth (which happened to be the only side of his mouth).

“I beg your pardon?” said Milo.

“It’s .58,” he repeated; “it’s a little bit *more* than a half.”

“Have you always been that way?” asked Milo impatiently, for he felt that that was a needlessly fine distinction.

“My goodness, no,” the child assured him. “A few years ago I was just .42 and, believe me, that was terribly inconvenient.”

“What is the rest of your family like?” said Milo, this time a bit more sympathetically.

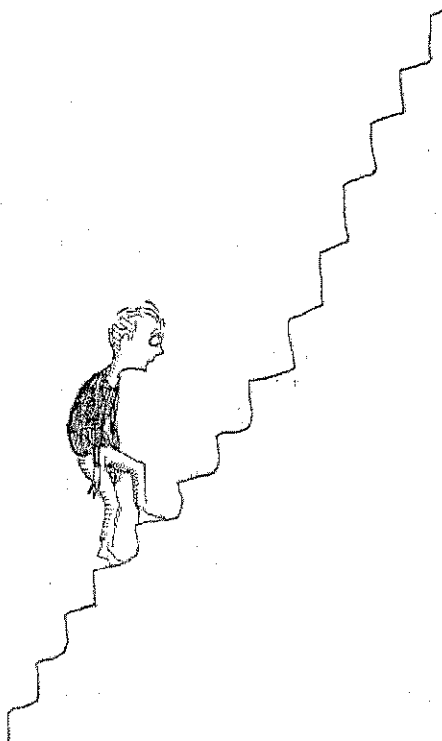
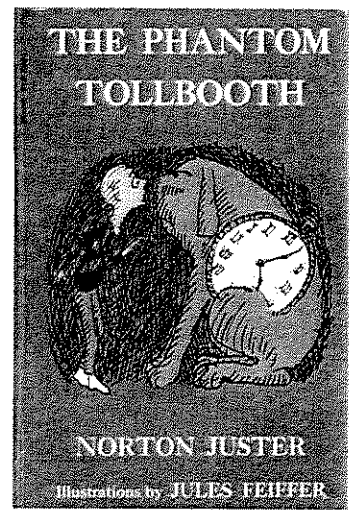
“Oh, we’re just the average family,” he said thoughtfully; “mother, father, and 2.58 children – and, as I explained, I’m the .58.”

“It must be rather odd being only part of a person,” Milo remarked.

“Not at all,” said the child. “Every average family has 2.58 children, so I always have someone to play with. Besides, each family also has an average of 1.3 automobiles, and since I’m the only one who can drive three tenths of a car, I get to use it all the time.”

“But averages aren’t real,” objected Milo; “they’re just imaginary.”

“That may be so,” he agreed, “but they’re also very useful at times. For instance, if you didn’t have any money at all, but you happened to be



with four other people who had ten dollars apiece, then you'd each have an average of eight dollars. Isn't that right?"

"I guess so," said Milo weakly.

"Well, think how much better off you'd be, just because of averages," he explained convincingly. "And think of the poor farmer when it doesn't rain all year: if there wasn't an average yearly rainfall of 37 inches in this part of the country, all his crops would wither and die."

It all sounded terribly confusing to Milo, for he had always had trouble in school with just this subject.

"There are still other advantages," continued the child. "For instance, if one rat were cornered by nine cats, then, on the average, each cat would be 10 per cent rat and the rat would be 90 per cent cat. If you happened to be a rat, you can see how much nicer it would make things."

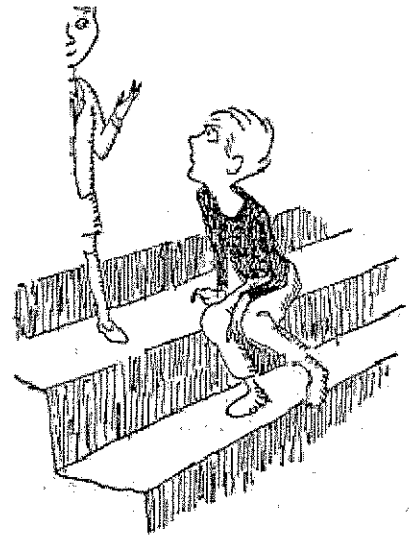
"But that can never be," said Milo, jumping to his feet.

"Don't be too sure," said the child patiently, "for one of the nicest things about mathematics, or anything else you might care to learn, is that many of the things which can never be, often are. You see," he went on, "it's very much like your trying to reach Infinity. You know that it's there, but you just don't know where – but just because you can never reach it doesn't mean that it's not worth looking for."

"I hadn't thought of it that way," said Milo, starting down the stairs. "I think I'll go back now."

"A wise decision," the child agreed; "but try again someday – perhaps you'll get much closer." And, as Milo waved good-by, he smiled warmly, which he usually did on the average of 47 times a day.

"Everyone here knows so much more than I do," thought Milo as he leaped from step to step. "I'll have to do a lot better if I'm going to rescue the princesses."



## Common Core Math I Homework

### Measures of Center: Mean

*The Phantom Tollbooth* is a children's fantasy adventure novel published in 1961. It was written by Norton Juster and illustrated by Jules Feiffer. It tells the story of a bored young boy named Milo who unexpectedly receives a magic miniature tollbooth one afternoon and, having nothing better to do, decides to drive through it in his toy car. The tollbooth transports him to a land called the Kingdom of Wisdom. There he acquires two faithful companions, has many adventures, and goes on a quest to rescue the princesses of the kingdom from the castle of air, Princess Rhyme and Princess Reason. The text is full of puns, and many events, such as Milo's jump to the Island of Conclusions, exemplify literal meanings of English language idioms.<sup>1</sup>

- 1) Read the attached excerpt from *The Phantom Tollbooth*.
- 2) Explain what it means to have an average of 2.58 children in each family.
- 3) *The Phantom Tollbooth* was published in 1961. According to US Census data, the average number of children per family in 2000 was 1.86 and in 2010 was 0.94. What factors have contributed to this decline?
- 4) What does Milo mean when he says "But averages aren't real, they're just imaginary"?
- 5) How does .58 of a child use the idea of fair shares to explain the mean?
- 6) Is .58 of a child correct in the following explanation? Explain why or why not.

*"Well, think how much better off you'd be, just because of averages," he explained convincingly. "And think of the poor farmer when it doesn't rain all year: if there wasn't an average yearly rainfall of 37 inches in this part of the country, all his crops would wither and die."*

- 7) Find an example in the newspaper or online of an average. Describe what the average means in context.
- 8) Using salary information from the Wacky Widget Company, answer the questions below.

Job	Number of Employees	Annual Salary
President	1	\$200,000
Vice President	1	\$50,000
Supervisor	2	\$25,000
Sales Representative	4	\$21,000
Warehouse Worker	2	\$15,000
Custodian	2	\$15,000
Clerical Worker	3	\$12,000

- a) Find the mean salary.
- b) Find the median salary.
- c) Why do you suppose most employees were upset by a recent newspaper headline reporting "Average worker at Wacky Widget making \$32,000"?
- d) Create a newspaper headline that you feel is more appropriate.

Warm up

<sup>1</sup>From Wikipedia [http://en.wikipedia.org/wiki/The\\_Phantom\\_Tollbooth](http://en.wikipedia.org/wiki/The_Phantom_Tollbooth)