

The McSquares: A Restaurant Tale of Tables and Algebra

by Marilyn Burns

Mr. and Mrs. McSquare loved burgers. They loved to eat burgers and they loved to cook burgers.

When friends and family came to visit, the McSquares always served burgers for dinner, and that made everyone happy. "The McSquares' burgers are delicious," said Aunt Sadie.

"They're the best," said Cousin Larry.

"They're better here than at any restaurant," added their friend, Ben. Everyone agreed.

One July, Mr. and Mrs. McSquare went on vacation and drove to visit other towns in other states. When they went out to eat, they both ordered the exact same dinner—burgers. They never got tired of burgers.

After they had a terrific burger dinner one night, Mr. and Mrs. McSquare also had what they thought was a terrific idea. "What our town needs is a good burger restaurant," said Mrs. McSquare.

"Yes, I agree," said Mr. McSquare.

They were both silent for a moment. Then, at the same time, they both came up with the same idea. "Why don't we open a burger restaurant?" They got very excited.

"Our friends love our burgers," said Mr. McSquare.

"And there's no burger restaurant in our town," said Mrs. McSquare.

They left the restaurant, went back to the motel, and talked and talked about ideas for their own restaurant until they were so sleepy that they had to go to bed.

Mr. and Mrs. McSquare woke up the next morning still excited about the idea. "Let's do it," they agreed. And they did. As soon as they arrived home, they got busy with their plans. The name for the restaurant was easy—McSquares. Everything in the restaurant would be square—the restaurant sign, the tables, even the burgers and buns. "We decided on our own theme," Mrs. McSquare explained when the local newspaper reporter came for an interview.

They also decided to start small and see if they were successful. "Being small will give us a chance to practice and learn," said Mrs. McSquare.

"Then we can grow the restaurant," said Mr. McSquare.

Finally the kitchen was ready for the grand opening. The McSquares set up three tables (square tables, of course), set four chairs at each, and put out silverware and plates (square plates, of course). They posted a sign in the window:

Grand Opening!
Welcome!
We can serve 12 people at a time!

In no time, the restaurant was full and the McSquares were very, very busy. And while people were eating, a line was forming outside. People didn't mind waiting, especially since Mr. McSquare served complimentary lemonade (in cups with square bottoms, of course).

At the end of their first day of business, when Mr. and Mrs. McSquare were cleaning the restaurant to get ready for the next day, Mr. McSquare said, "How about we add another table so people won't have to wait so long?" "That's a fine idea," said Mrs. McSquare, "but we'll have to change the number in the sign in the window."

"No problem," said Mr. McSquare. With a marker, he crossed out the 12 and wrote a 16. They both smiled, tired, but very, very happy.

McSquares was a huge success. They kept adding and adding tables, and pretty soon had expanded their restaurant so that they had ten tables. The sign in the window no longer said Grand Opening. It now read:

Welcome!
We can serve 40 people at a time!

Life was good for the McSquares.

One day, after Mr. and Mrs. Tucker had eaten dinner at McSquares, they asked Mr. and Mrs. McSquare if they could arrange to have a private banquet in the restaurant.

"Of course," Mr. and Mrs. McSquare said. They were flattered to be asked.

But Mr. and Mrs. Tucker had a special request. "Instead of having the tables arranged separately so that people sit in fours, we'd like to have everyone sit at one long banquet table. Can you rearrange the tables for our party?"

"No problem," said Mr. McSquare.

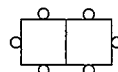
"How many people will be coming to your party?" asked Mrs. McSquare. Mr. and Mrs. Tucker weren't sure yet and said they would go home and think about it.

"And we'll think about how many people we can accommodate in a banquet style," said Mr. McSquare. They agreed to meet the next day.

That night, Mr. and Mrs. McSquare thought about Mr. and Mrs. Tucker's request for rearranging tables. "It won't be any problem to push the square tables together," said Mr. McSquare.

As they thought about how a banquet arrangement might look, Mrs. McSquare got paper and pencil and began to sketch. After drawing two tables pushed together and marking the places for chairs, she was very, very surprised. "Look at my drawing," she said to Mr. McSquare. "If we push two tables together, there are places only for six people to sit, not eight people as we usually have at two tables."

Mr. McSquare looked at Mrs. McSquare's drawing. "Well, look at that!" he said, also surprised. "We'd better do some thinking here."



So Mr. and Mrs. McSquare cut out ten small squares from a large piece of cardboard and began to investigate. They made arrangements of two tables in a row, three tables in a row, four tables in a row, and so on up to ten tables in a row. For each size banquet table, they figured out how many guests they could seat. Finally, they drew pictures and recorded the information on a chart so that they could explain clearly to the Tuckers what they learned.

What did Mr. and Mrs. McSquare learn from their investigation?

Mr. and Mrs. Triangle were so impressed with the success of the McSquares' restaurant that they decided to open up their own restaurant. Their specialty was grilled cheese sandwiches. They made all kinds of grilled cheese sandwiches—with tomato, with bacon, with peppers, with tomato and bacon, with tomato and peppers, and on and on. They were busy figuring out for their menu all of the possible combinations of grilled cheese sandwiches. (But that's a math problem for another day.) And they always cut their sandwiches on the diagonal and served customers two grilled cheese triangles. Also, the tables in their restaurant were all triangles. (And so were the plates and the bottoms of the cups, of course.)

They called their restaurant McTriangles.

How many people could Mr. and Mrs. Triangle serve at one time with one table? With two tables? With three, four, and so on up to ten tables?

How many people could Mr. and Mrs. Triangle serve by rearranging the tables into banquet style?

Two more restaurants eventually opened in town. One was McTrapezoids and the other was McHexagons. Investigate the table seatings for these two restaurants, both for restaurant style and for banquet style.