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ETHNOMATHEMATICS ON THE PATTERN AND PHILOSOPHY OF BATIK BANTEN MOTIFS

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Abstract
Mathematics is a science that studies logic, form, arrangement, magnitude, and interrelated concepts. One of the cultures owned by Banten is batik. This type of research method is a qualitative research method that uses ethnographic design. . This research instrument is the researcher himself. Based on the researchers' results and discussion, there are mathematical concepts in batik Banten motifs. Researchers can use mathematical concepts on Batik Banten motifs to wake up flat triangles, rectangles, circles, translation, and mirroring.
Keywords: Mathematic; Batik Banten, Philosophy

INTRODUCTION

Mathematics is a science that studies logic, form, arrangement, quantity, and related concepts (James & James in Nur 2013). Mathematics is often considered a difficult subject so an effective learning method is to use contextual learning methods. Learning by contextual methods is learning that associates material with daily activities. Mathematics is also always closely related to daily activities and culture or art in Indonesia. One of the arts related to mathematics is batik.

Batik is taken from the word "Amba" which means "Writing" and "Titik" which means Batik Point is interpreted as an immersion technique, using night candles. Batik has three types, namely batik tulis, batik cap, and batik combine. Every region in Indonesia has the characteristics of various batik motifs.

Banten is one of the smallest provinces in Indonesia. Banten has a variety of arts and cultures. One of the cultures owned is Banten batik. The name and design of the motif (philosophy) of Batik Banten have the philosophical meaning of "THIS CLOTHING TELLS A STORY" (this cloth can tell the history, history of Banten in the philosophy of Banten Batik. What distinguishes Banten Batik from another batik in Indonesia lies in three things. The first is in batik motifs, where the motif has ornamental patterns derived from ancient relics named Wengkal Artifacts resulting from the excavation of archaeologists in 1976 in Banten. The second lies in the more dominant gray color that shows the characteristics of the Banten people. And the third lies in Philosophy, where the name of batik motifs and motifs is interconnected with the history of Banten. In 2002 Banten had 75 different motifs. Banten Batik motif is based

on geometric shapes, this we can see from the motifs in the form of flat wakes such as ketupat, circles, squares, stripes, and others.

The above exposure to Banten Batik indicates that people in Banten have used Mathematics in everyday life. From this discussion, the author wanted to conduct research on mathematical research concepts on Banten Batik motifs in mathematics learning.

METHOD

This research method is a qualitative research method that uses ethnographic design. The ethnographic approach is used to describe or describe mathematical concepts in Banten Batik. The instrument for this study is the researcher himself. Then in data collection techniques, in this case, researchers collect data through interviews, observations, and documentation. This research was carried out on November 20, 2021, at the Banten Mukarmas Batik Center in Serang Banten City.

The first data analysis technique reduces the data, namely collecting all the data first and then separating the important and unimportant data. Then after being reduced the data presented, and after that, the researcher made conclusions about the mathematical concepts in Banten Batik.

RESULTS AND DISCUSSION

Banten Batik is an archaeological reconstruction, of the history of the charm of batik cloth that tells about Banten culture (Kurniawan). The motifs in Banten Batik are closely related to mathematical concepts, especially in Transformation Geometry and Flat Build material. After making observations, researchers found 5 Motifs of Banten Batik that have mathematical concepts in the material of Transformation Geometry and Flat Wake, namely Panjunan, Paduraksa, Surasaji, Tirtayasa, and Wamilahan motifs.

1. Mathematical Concepts on Panjunan Motifs

Panjunan motif is a motif taken from the village's name where potters and ceramic artisans are located in the Banten Sultanate.

The mathematical concept in this motif is the existence of flat building elements of circles, triangles, and rectangles.

2. Mathematical Concepts on Paduraksa motifs

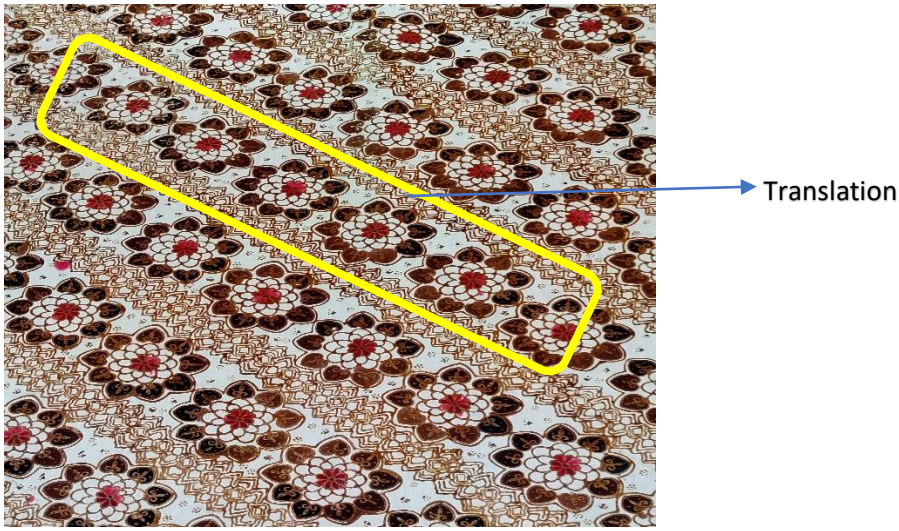
Paduraksa motif is the name of the layout of the gate building in the open room (square) where the ceremony is in the palace environment.

The mathematical concept in this motif is the flat construction of translational triangles and mirroring.

3. Mathematical Concepts on Surasaji Motifs

Surasaji's motive was the glory of the Banten sultanate government until the sultan got a valiant title.

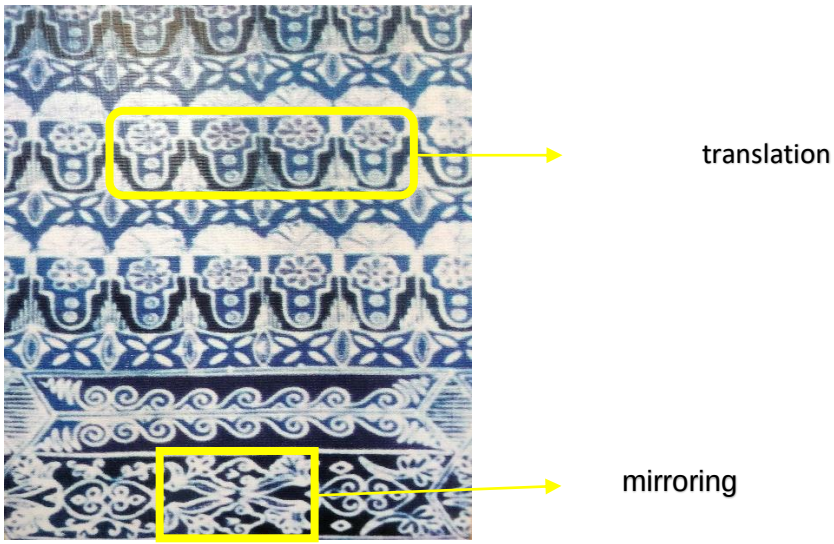
The mathematical concept that exists in this motif is translation.



4. Mathematical Concepts on Tirtayasa Motifs

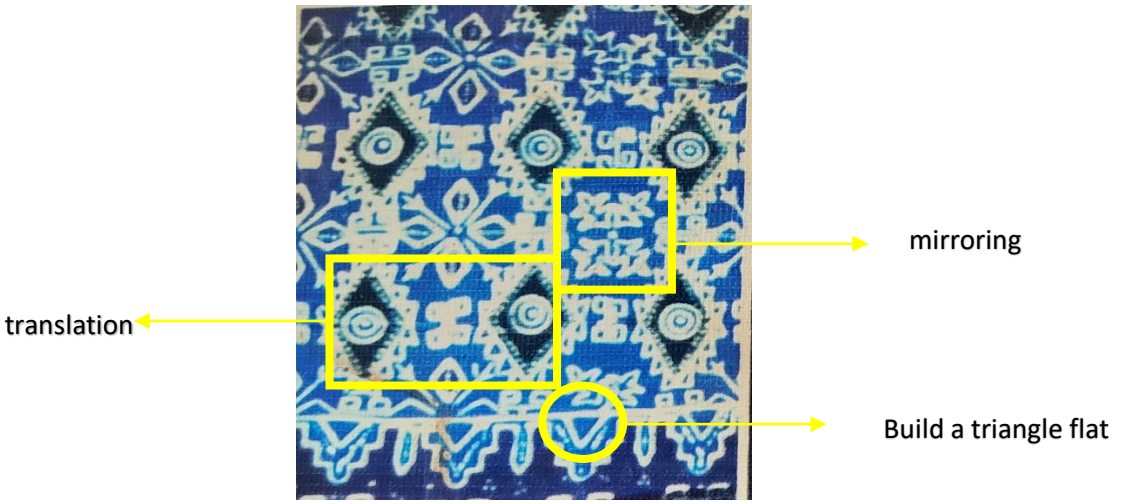
Motif Tirtayasa is a water treatment site in the Banten sultanate.

The mathematical concepts in the Tirtayasa Motif are translation and mirroring.



5. Mathematical Concepts on Military Motives

The Wamilahan motif is taken from a village name where bamboo defense craftsmen and mats in the palace environment. Mathematical concepts in the Wamilahan Motif are the flat building of triangles, mirroring, and translation.



CONCLUSION

From the description above, the researcher concluded that there is a mathematical concept in the Banten Batik motif. The mathematical concept that researchers can on the Motif of Banten Batik is the flat building of triangles, rectangles, circles, translations, and mirroring. Based on the results of this study, researchers hope to be used in helping contextual learning concepts in mathematics subjects.

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