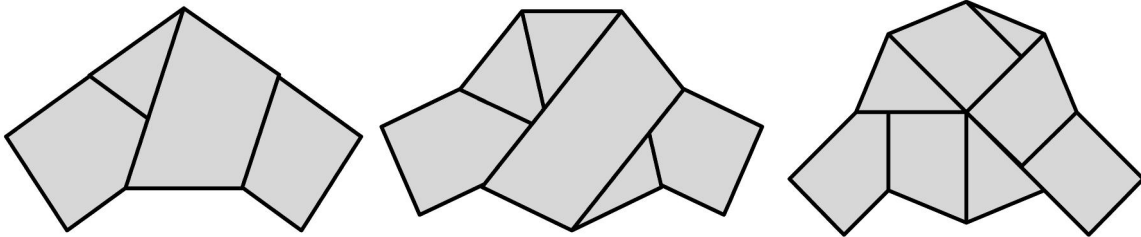


# A Study on Knots of Tapes

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## **Abstract:**

It is well-known that folding a paper tape into a knot results in a regular pentagon (ex.: Coxeter 1961).

It is less known, however, that one can make a knot in a regular heptagon or nonagon (ex.: Takano 1971).

Folding a knot of a regular octagon or a specific hexagon is also possible (Maekawa).

As far as I know, there has not been a well-organized research on the polygonal knots of strips.

I will look into the following topics about this issue.

I believe one can use some of them as educational materials in Mathematics.

1. Paper knots as manners of folding letters and symbol design in the pre-modern era
2. Why a knot of a tape is a regular pentagon
3. Structure of knots in regular odd-sided polygons
4. Structure of knots in regular octagons
5. Difficulties in folding a knot in regular decagons
6. Comprehensive classification of knots in regular polygons
7. Knots in non-regular hexagons
8. Further research projects