Since 2010, the Monterey Bay Area Math Project (MBAMP) has hosted the MBAMP Math Teachers' Circle (MTC). This MTC is a monthly colloquium series from October to May. UCSC Math Professor, Marty Weissman has facilitated our MTC since it's beginning in Oct 2010 sessions.

The mission of our MTC is to promote a culture of enjoyment of mathematics problem solving activities among middle and high school teachers with the expectation that they will bring their enthusiasm back to their classrooms. The UCSC Math Teachers' Circle provides this opportunity to the teachers in Santa Cruz County, as well as, providing a forum where they can meet and discuss curriculum and classroom issues in a relaxed atmosphere.

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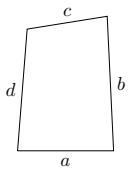
October 9, 2012 Title: Geometry from Ancient Iraq

Abstract: We will study the tablet, BM (British Museum) #15285, which is an Old Babylonian series of geometry exercises involving lengths and areas of shapes in the plane. Not only do we see shapes like squares and circles, but also "wedges", "barges", and "cow's noses". How and why might the people of ancient Iraq have studied the geometry of these figures? How did they reckon the area of the circle? What can we learn from the physical tablet about how mathematics was written and taught? If time allows, we will also study tablet YBC 6967, which contains an ancient analogue of "completing the square". Come to learn about ancient geometry

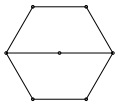
The "surveyors formula" for measuring the area of a quadrilateral:



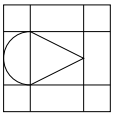
The area of the quadrilateral is *approximately* the product of the average of the sides.

$$Area \approx \frac{a+c}{2} \cdot \frac{b+d}{2}.$$

What is the area of a hexagon, using the surveyors formula?



Can you figure out why the area might be 1/12 of the square of the perimeter?



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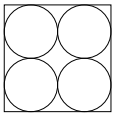

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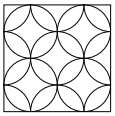

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From BM15285:

Problem 39: The side of the square is 1 cable. Inside it are 4 wedges, 16 barges, and 5 cows noses. What are their areas?

From YBC 6967:

> [A reciprocal] exceeds its reciprocal by 7. What are [the reciprocal] and its reciprocal?
>
> You: break in half the 7 by which the reciprocal exceeds its reciprocal, and 3; 30 (will come up). Multiply 3; 30 by 3; 30 and 12; 15 (will come up). Append [1 : 00, the area,] to the 12; 15 which came up for you and 1 : 12; 15 (will come up).
>
> What is [the square-side of] 1 : 12; 15? 8; 30.
>
> Put down [8; 30 and] 8; 30, its equivalent, and subtract 3; 30, the takiltum-square, from one (of them); append (3; 30) to one (of them). ...