

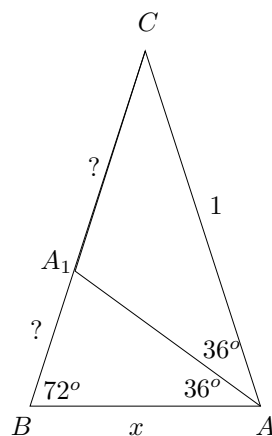
Assignment 6

Oral questions

No oral questions assigned due to the upcoming midterm.

Questions to be answered in writing

1. Let a and b be the side lengths of a parallelogram, and c and d the lengths of its diagonals. Prove that $2(a^2 + b^2) = c^2 + d^2$. (In other words, the sum of the lengths of the squares of the diagonals equals the sum of the squares of the side lengths.)
2. 4.4/8 (Angle bisector theorem)
3. Use the picture below to find an exact formula for $\cos(72^\circ) = x/2$.



Prove your claim using similarity of triangles and the angle bisector theorem.