PUTNAM EXAM SEMINAR
FALL 2012

ASSIGNMENT 3
DUE SEPTEMBER 17

Exercise 1. $ROMN$ is a rectangle with $|RO| = 11$ and $|OM| = 5$. The triangle ABC has circumcenter O and its altitudes intersect at R. M is the midpoint of BC and AN is the altitude from A to BC. What is $|BC|$? [Putnam 1997, A1]

Exercise 2. Find the area of a convex octagon inscribed in a circle that has 4 consecutive sides of length 3 units and 4 consecutive sides of length 2 units. Give your answer in the form $r + s\sqrt{t}$, where r, s and t are positive integers.