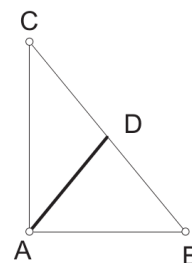# Math 329 (Geometry) Homework 1

Professor Ilya Kofman

NAME: _____

Theorem.   In any right triangle, the median from the right angle to the hypotenuse equals half the hypotenuse.

Complete the following five (or six) proofs of the theorem. Start each proof with the statement as indicated. Do not write more than necessary. A perfect answer is both correct and concise.

(a) Draw $DE \parallel AC$.

(b) Draw $DE \perp AB$.

(c) Rotate $\triangle ABC$ by π around D.

(d) Draw the circumscribed circle about $\triangle ABC$.

(e) Suppose A, B, C have the coordinates $A(0,0)$, $B(x,0)$, $C(0,y)$.

(f) Bonus: A different proof?