MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2011
ROUND 6 PLANE GEOMETRY: POLYGONS (no areas)

ANSWERS

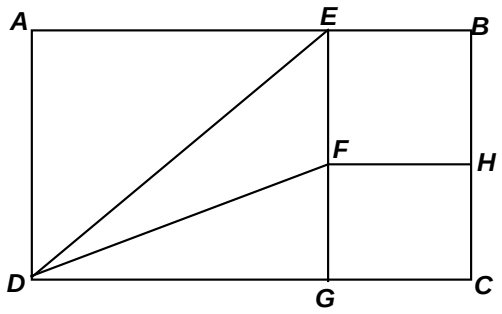
A) _____

B) _____°

C) _____°

A) The interior and exterior angles of a regular polygon have measures in a 44 : 1 ratio. How many diagonals may be drawn from a single vertex?

B) *ABCD*, *AEGD*, *EBCG* and *FHCG* are rectangles. *EBHF* is a square. $BE = 4$, $DF = 6$
The ratio of the perimeter of *EBHF* to the perimeter of *FHCG* is 8 : 7. Compute the measure of $\angle DFE$.



C) In ΔABC, $m\angle A = 60°$. *L* and *E* are located on $\overline{AC}$ and $\overline{AB}$ respectively such that *CE* = *CL* = *CB* and *BE* = *EL*. Compute $m\angle BEL$.