MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2012
ROUND 6 PLANE GEOMETRY: POLYGONS (no areas)

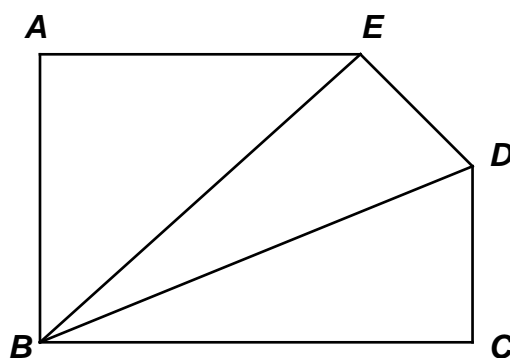### ANSWERS

A) _____

B) _____ °

C) _____ °

A) Given: Right angles at *A*, *B* and *C*
   $AE = 9$, $BC = 12$, and $DC = DE = 5$
   Compute $BE + BD - AB$.

B) The interior angles of pentagon *P* have degree-measures of x^2, x^2, $13x + 100$, 120 and 170. Compute the <u>sum</u> of the measures of the <u>largest</u> two angles in *P*.

C) Given: *ABCD* is a square, *E* and *F* are points on $\overline{AB}$ and $\overline{BC}$ respectively.
   $AE = CF$. *K* is the point of intersection of $\overline{AF}$ and $\overline{CE}$.
   $m\angle BAF = 40°$
   Compute $m\angle EKF$.