MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2011
ROUND 5 GEOMETRY: SIMILARITY OF POLYGONS

ANSWERS

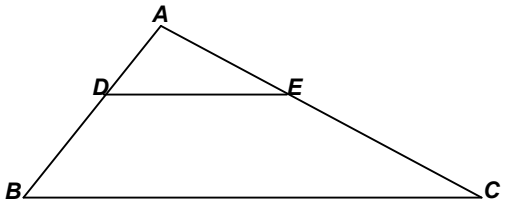
A) _____ : _____

B) _____ : _____

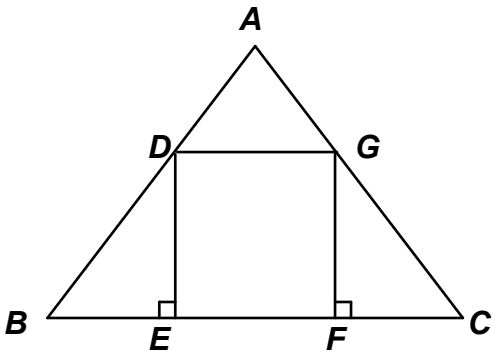
C) _____

******* NO CALCULATORS ON THIS ROUND *******

A) Given: $\overline{DE} \parallel \overline{BC}, DE = 10, BC = 25$
Compute the ratio of the area of ΔADE to the area of trapezoid $DECB$.



B) ΔABC is equilateral, $\overline{DG} \parallel \overline{BC}$.
The area $BDGC$ is $\frac{15}{16}^{\text{th}}$ the area of ΔABC.
Compute the ratio of the area of ΔABC to the area of ΔBED.



C) Given: Four regular hexagons A, B, C and D
A has an area of $\frac{9\sqrt{3}}{4}$ square units.
A longer diagonal in B has length $4\sqrt{6}$.
Sides of regular hexagon C have the same length as a shorter diagonal of A.
Sides of regular hexagon D have the same length as a shorter diagonal of B.
Compute the sum of the areas of hexagons C and D.