

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2010
ROUND 5 GEOMETRY: SIMILARITY OF POLYGONS

ANSWERS

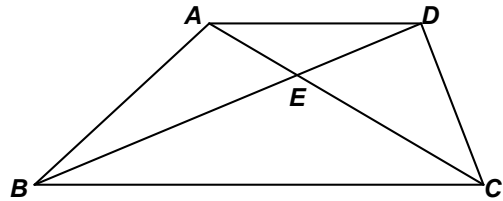
A) _____ units²

B) _____ : _____

C) _____ : _____ : _____

******* NO CALCULATORS IN THIS ROUND *******

- A) In trapezoid $ABCD$, $\overline{AD} \parallel \overline{BC}$,
 $AE = 4$, $BE = 15$, $CE = 10$ and $DE = 6$.
 If the area of $\triangle BEC$ is 50 units²,
 what is the area of $\triangle ADE$?



- B) The ratio of the length of the longest diagonal in a regular hexagon A to the length of shortest diagonal in regular hexagon B is 4 : 3. Compute the ratio of the length of shortest diagonal of hexagon A to the length of the longest diagonal of hexagon B .

- C) Given: $\triangle ABC$ is isosceles, $\overline{DE} \parallel \overline{BC}$, $\frac{FG}{AG} = \frac{2}{3}$ and $DEC'B'$ is a square
 Express $area(\triangle AFD) : area(DEC'B') : area(DECB)$
 as a simplified ratio.

