

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 4 - JANUARY 2009
ROUND 5 GEOMETRY: SIMILARITY OF POLYGONS

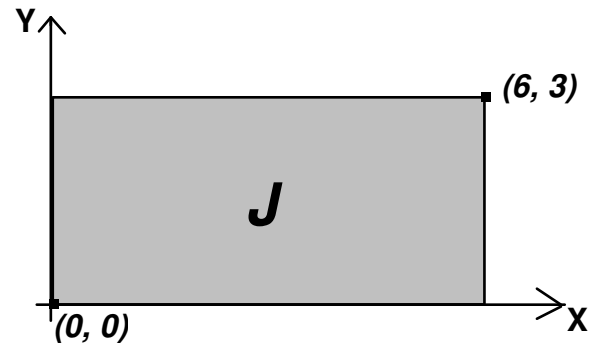
ANSWERS

A) _____

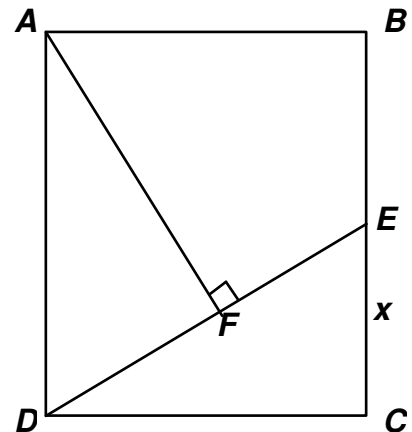
B) _____

C) _____ : _____

- A) Rectangle J contains all points (x, y) in the shaded region.
 What is the area of the rectangle that contains all the points $(2x + 3, 6 - 2y)$?



- B) In rectangle $ABCD$, $EC = x$, $AB = 13$, $AD = 15$ and
 $\frac{\text{Area}(\triangle DCE)}{\text{Area}(\triangle DFA)} = \frac{10}{9}$
 (E is on \overline{BC} and F is on \overline{DE})
 Compute x .



- C) In isosceles triangle ABC , \overline{DE} contains the centroid P of $\triangle ABC$ and is parallel to base \overline{BC} . D and E lie on \overline{AB} and \overline{AC} , respectively.
 Find the simplified ratio of the area of $\triangle ADE$ to the area of trapezoid $DECG$.

