MASSACHUSETTS MATHEMATICS LEAGUE
JANUARY 2006
ROUND 5 GEOMETRY: SIMILAR POLYGONS
ANSWERS

A)_____ sq units

B)_____

C)_____

A) A 3-4-5 triangle is enlarged to make a similar triangle with hypotenuse 50 units long. What is the area of the enlarged triangle?

B) A right Δ has integer sides and one side has length 5. A second Δ with a perimeter of 1 is similar to the first Δ. Find the maximum possible difference between the areas of the two triangles. Express the answer as a simplified fraction $\frac{a}{b}$.

C) *ABCDEF* is a regular hexagon of side 10 cm. *M* is the midpoint of $\overline{AB}$ and *N* the midpoint of $\overline{CD}$. *X* is the intersection of $\overline{ME}$ and $\overline{NF}$. Find the exact length *MX* in simplified radical form.