

MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 1 - OCTOBER 2013
ROUND 2 PYTHAGOREAN RELATIONS IN RECTILINEAR FIGURES

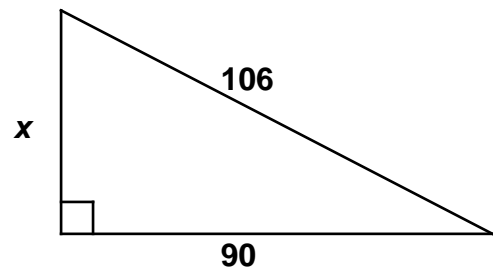
ANSWERS

A) _____

B) _____

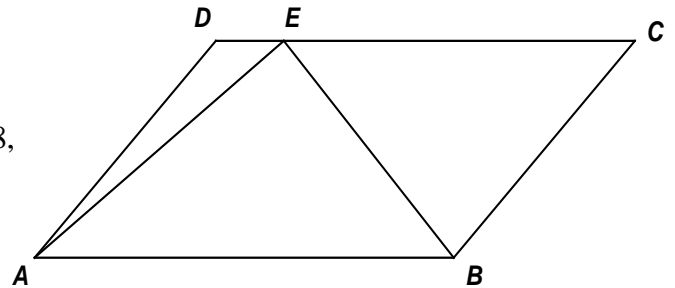
C) (_____ , _____)

A) Compute x .



B) Given: $ABCD$ is a parallelogram, $AB = 12$, $AD = 8$,
 $\triangle AEB$ is isosceles with $AE = BE$, $m\angle DAB = 60^\circ$

Compute AE .



C) In $\triangle ABC$, $m\angle ACB = 90^\circ$, $\overline{CD} \perp \overline{AB}$, $AC = 3x + 2y + 1$,
 $BC = 6y - 2$, $AB = 7x + 2y + 1$,
 $AD = 4x - 2$, $DB = 5y - 3$ and $CD = 2(x + y)$.
 Compute the ordered pair (x, y) .

