MASSACHUSETTS MATHEMATICS LEAGUE
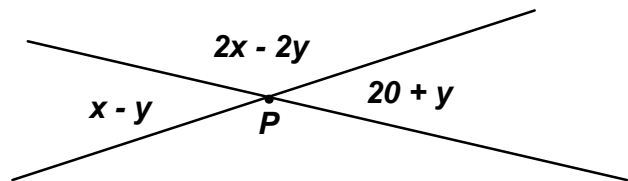## CONTEST 2 - NOVEMBER 2010
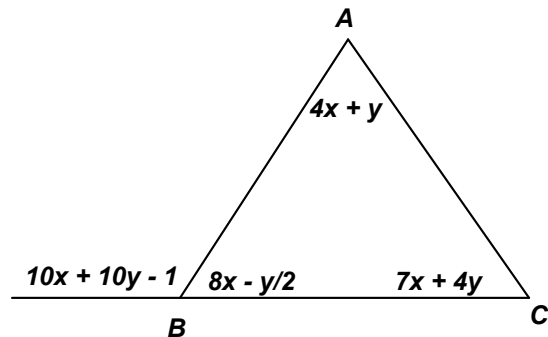## ROUND 6 PLANE GEOMETRY: ANGLES, TRIANGLES AND PARALLELS

ANSWERS

A) _____ °

B) (_____ , _____)

C) _____

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

A) Compute the degree measure of the <u>larger</u> of the vertical angles with vertex at P in the diagram at the right.

2x - 2y

20 + y

x - y

P

B) Solve for (x, y) given $AB = AC$.

A

4x + y

10x + 10y - 1

8x - y/2

7x + 4y

B

C

C) In right triangle ABC, $\angle GFI$, $\angle HFI$, $\angle IHK$, $\angle IKH$ and $\angle JBK$ have measures as indicated in terms of x and y, m$\angle GDF = 36°$ and five perpendiculars to $\overline{BC}$ are marked. If m$\angle CAD = a$ and m$\angle EDG = b$, compute $a + b$.

A

a D

b 36°

F

y x - 3

H

y+10

J

C E