MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2011
ROUND 6 PLANE GEOMETRY: ANGLES, TRIANGLES AND PARALLELS

ANSWERS

A) _____ °

B) _____ °

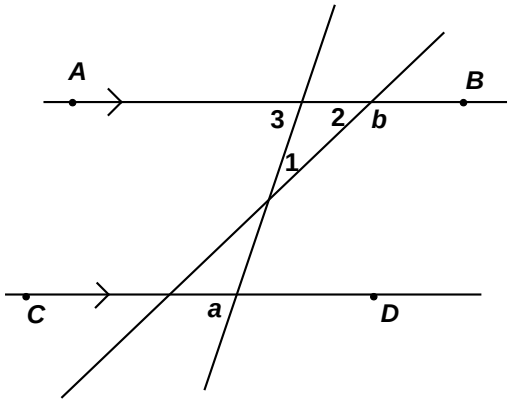
C) _____ °

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

A)

$\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, $m\angle 1 = m\angle 2 + 15°$, $m\angle 3 = 73°$

Compute $b - a$.

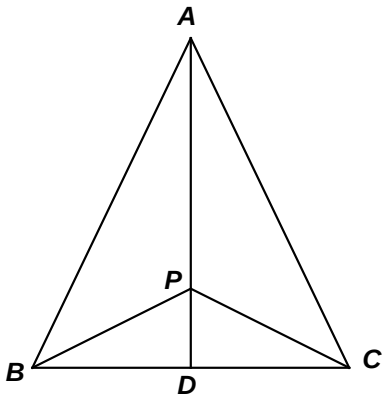


B) ΔABC is isosceles with base $\overline{BC}$.

$\overrightarrow{BP}$ bisects $\measuredangle ABC$ and $\overrightarrow{CP}$ bisects $\measuredangle ACB$.

If $AB > BC$ and $m\measuredangle BAC = (2k)°$,

compute $m\measuredangle BPA - m\measuredangle BPC$ <u>in terms of k</u>.



C)

Two angles in an isosceles triangle measure $(x + 5)°$ and $(2x - 30)°$.

Compute the sum of the measures of <u>all</u> possible vertex angles.