MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 6 – MARCH 2015
ROUND 3 TRIGONOMETRY: ANYTHING

ANSWERS

A) _____

B) _____

C) _____

A) The solution set to a trig equation is denoted $5\theta = \begin{cases} 60° + n \cdot 360° \\ 120° + n \cdot 360° \end{cases}$, where *n* is an integer.
Compute the sum of the degree-measures of the obtuse values of θ belonging to the solution set.

B) Solve for *x*, where $0 < x < 2\pi$. $\left|\tan x + \sqrt{3}\right|\left(\cos x + \frac{\sqrt{3}}{2}\right)^5\left(\sin x + \frac{3}{2}\right)^3 < 0$

C) For $x = 5\pi/8$, compute $1 + \sin^2 x + \cos^2 x + \tan^2 x + \cot^2 x + \sec^2 x + \csc^2 x$.