MASSACHUSETTS MATHEMATICS LEAGUE
FEBRUARY 2004
ROUND 3: TRIG. IDENTITIES OR INVERSES

ANSWERS

A)_____

B)_____

C)_____

A) Simplify $\dfrac{(\cot\theta - \cos\theta)(1 + \sin\theta)}{\cos^3\theta}$ to the form T(θ) where T is one of the six trig functions.

B) For $0^0 \le \theta < 360^0$, solve $\dfrac{2\tan\theta}{1 + \tan^2\theta} = \dfrac{\sqrt{3}}{2}$.

C) Using principle values, express $\cos(\sec^{-1}\dfrac{3}{2} - \cos^{-1}\dfrac{1}{5})$ in simple radical form.