MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 – FEBRUARY 2008
ROUND 3 TRIG: IDENTITIES AND/OR INVERSE FUNCTIONS

ANSWERS

A) _____

B) _____

C) _____

A) Solve for θ, where $0° \leq \theta < 360°$, if $\csc(2\theta) + \cot(2\theta) = 1$

B) Given: $\cos(40°) = k$ and $\sin(x) = 1 - 2k^2$
What are the possible values of x between 0° and 360° exclusive?

C) Determine the positive integer n for which

$$\sin\left(Arc\cos\left(-\frac{n}{11} \right) + Arc\tan\left(-\frac{1}{2\sqrt{6}} \right) \right) = \frac{53}{55}$$