MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2008
ROUND 5 TRIG: FUNCTIONS OF SPECIAL ANGLES

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

ANSWERS

A) _____

B) _____

C) _____

A) Solve for θ over $0 \le \theta < 2\pi$: $4(\sin\theta + 1) = 3\csc\theta$

B) Find all values of x over $-90 < x < 90°$ for which $\cos x = \dfrac{\cot(1035°)\cdot\tan(135°)}{\sec^2(-45°)}$.

C) Given: $\left(\tan\dfrac{4\pi}{3} - \sin\dfrac{5\pi}{2}\right)^{70} \cdot \left(\tan\dfrac{10\pi}{3} - \sin\dfrac{3\pi}{2}\right)^{70} = b^{140}$ Compute $|b|$.