MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2011
ROUND 5 TRIG: FUNCTIONS OF SPECIAL ANGLES

ANSWERS

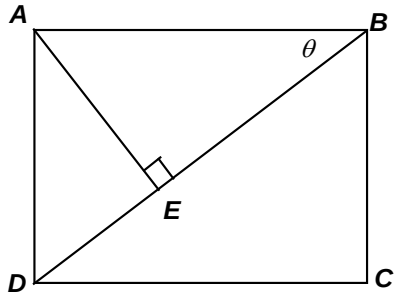
A) _____

B) (_____, _____ , _____)

C) _____

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

A) *ABCD* is a rectangle, $\overline{AE} \perp \overline{BD}$
AD = 5 and *AE* = 4
Compute $\cos\theta$.



B) In simplest form, $(\sin 45° + \tan 135°)^4 = \dfrac{A - B\sqrt{2}}{C}$, where *A*, *B* and *C* are positive integers. Determine the ordered triple (*A*, *B*, *C*).

C) Compute the <u>sum</u> of the values of *x* (in degrees) that satisfy $\cos(270° + x) = \sin(-600°)$ and lie between 1500° and 1900° <u>inclusive</u>.