MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2013
ROUND 5 TRIG: FUNCTIONS OF SPECIAL ANGLES

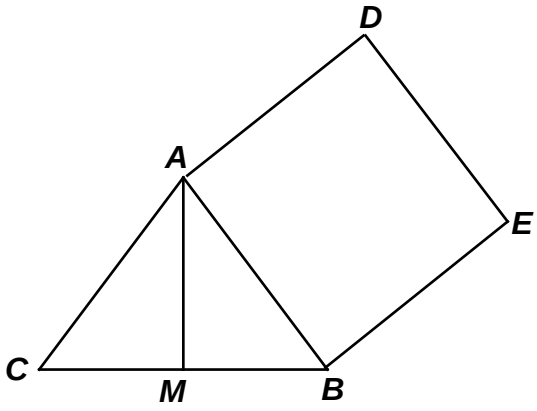
ANSWERS

A) _____

B) _____

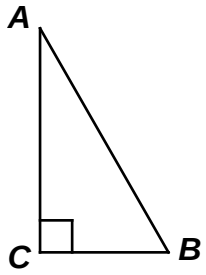
C) _____

A) Given: ΔABC is equilateral, M is the midpoint of $\overline{BC}$, and the area of square $ABED$ is 256.
Compute AM.



B) Given: $AB = 2BC$

Compute: $\left(\csc B \cot A \sin(750°) \tan(-480°) \sin(570°)\right)^5$



C) Solve for θ over $0° \le \theta < 360°$: $\quad 2\sin\theta° < \dfrac{\sin 10° \sin 30° \sin 50° \sin 70°}{\cos 20° \cos 40° \cos 80° \cos 120°}$.