MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 – DECEMBER 2013
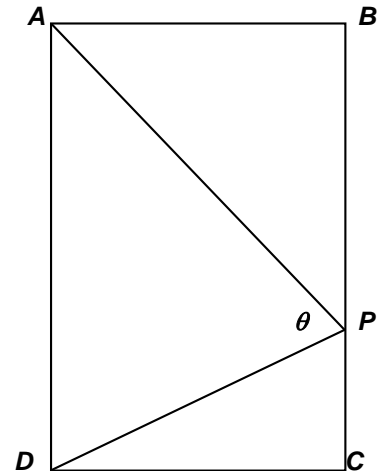## ROUND 1 TRIG: RIGHT ANGLE PROBLEMS, LAWS OF SINES AND COSINES

ANSWERS

A) _____

B) _____

C) _____

A) The sides of right $\triangle ABC$ are 1, x and 7, where $1 < x < 7$. A is the larger acute angle.
Compute the $\tan(\angle A)$.

B) In rectangle $ABCD$, $AB = 24$ and $BC = 42$. Point P is located on $\overline{BC}$
such that $BP : PC = 16 : 5$. Compute $\sin\theta$.

C) $\triangle ABC$ has sides in the ratio of $4 : 5 : 6$.
If the area of $\triangle ABC$ is $375\sqrt{7}$, then compute the perimeter of $\triangle ABC$.