MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 2 - NOVEMBER 2014
ROUND 6 PLANE GEOMETRY: ANGLES, TRIANGLES AND PARALLELS

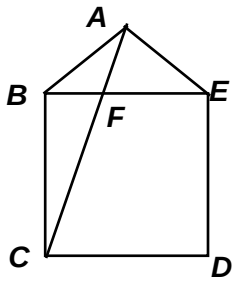
ANSWERS

A) _____

B) _____

C) _____

A) *ABE* is an isosceles triangle with base $\overline{BE}$.
BCDE is a square, $m\measuredangle BAE = 114°$ and $\overrightarrow{AC}$ trisects $\measuredangle BAE$.
Compute $m\measuredangle ACD$.



B) In scalene triangle *ABC*, $m\angle A = (6x+7)°$, $m\angle B = (8x-9)°$ and the exterior angle at *C* has a measure of $(x^2+46)°$. Compute all possible values of *x*.

C) In rectangle *ABCD*,
$m\angle AST = (5x-11)°, m\angle PQC = (2x+15)°$,
where *x* is an integer.
Given that $\angle PTS$ is obtuse, compute the number of possible degree-measures of $\angle PTR$.