MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 - FEBRUARY 2013
ROUND 5 PLANE GEOMETRY: CIRCLES

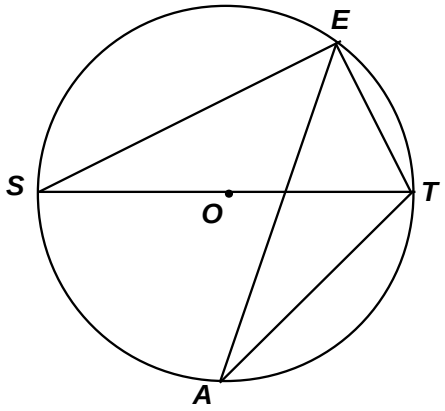
ANSWERS

A) _____ °

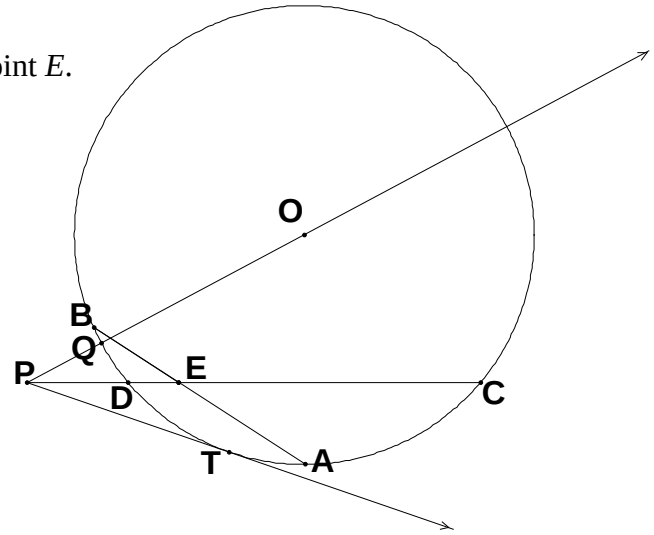
B) _____

C) _____ sq. inches

A) Given: $\overline{ST}$ is a diameter of circle *O*.
$m\angle ETS = 53°$, $m\angle SEA = m\angle TEA$
Compute the degree-measure of minor arc $\overset{\frown}{ETA}$.



B) In circle *O*, chords $\overline{AB}$ and $\overline{CD}$ intersect at point *E*.
Ray $\overrightarrow{PT}$ is tangent to circle *O* at point *T*.
Ray $\overrightarrow{PQ}$ pass through point *O*.
CE = 6, *DE* = 1, *AE* = 3, *PQ* = 1.5, *BE* = *PD*
Compute the radius of circle *O*.



C) Nine circles are inscribed inside a square whose area is 162 square inches. Compute the area of the shaded region.