MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 - FEBRUARY 2016
ROUND 5 PLANE GEOMETRY: CIRCLES

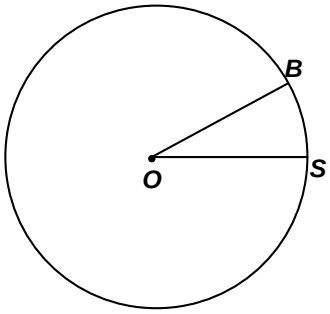
ANSWERS

A) _____

B) _____

C) _____

A) In circle *O*, $m\angle BOS = 27°$.
Compute the area of circle *O*, if the area of sector *SOB* is 22.5 .



B) In circle *O*, chord $\overline{AB}$ is a perpendicular bisector of chord $\overline{CD}$.
P is the intersection of $\overline{AB}$ and $\overline{CD}$ and $AP:PB = 1:4$.
If $\overline{PA}, \overline{PC}$, and $\overline{OC}$ have integer lengths, compute the <u>smallest</u> possible area of circle *O*.

C) Given: ΔABC is inscribed in circle *O* and its interior angle measures (in some order) are in a $5:12:13$ ratio. *M* is the midpoint of minor arc $\overset{\frown}{AC}$, *N* is the midpoint of minor arc $\overset{\frown}{BC}$, and *P* is the intersection of $\overline{AN}$ and $\overline{BM}$. Compute the <u>largest</u> possible degree-measure of <u>obtuse</u> angle *P*.

Note: There are 4 angles with vertex at *P*.