MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2007
ROUND 6 PLANE GEOMETRY: POLYGONS (no areas)

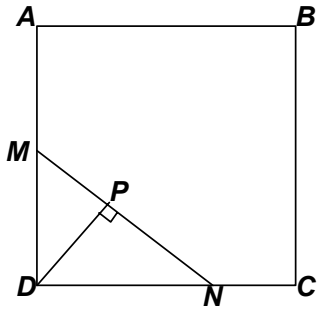
ANSWERS

A) _____

B) _____

C) _____

A) *ABCD* is a square with side 12. *M* is a midpoint of $\overline{AD}$ and *N* is the trisection point of $\overline{CD}$, closest to *C*.
Compute *DP*.



B) If a regular polygon had one more side it would have 23 more diagonals.
How many degrees in one of original polygon's interior angles?

C) Pentagon *ABCDE* is the union of rectangle *ABCE* and right triangle *CDE*.
$\overline{DF} \perp \overline{CE}$, *AE* = 60, *DE* = 15 and *FC* = 16
Compute *BE*.