MASSACHUSETTS MATHEMATICS LEAGUE
DECEMBER 2003
ROUND 1: TRIG. TRIANGLES

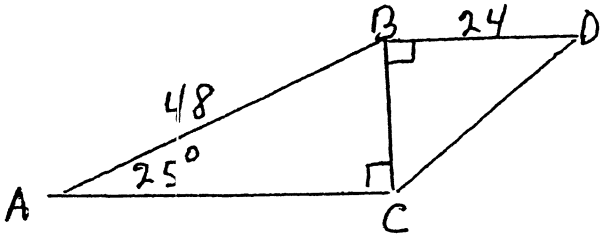
ANSWERS

A)_____

B)_____

C)_____

A) Given ΔABC, $\angle A = 25^0$, $\angle C = 90^0$, $AB = 48$. In ΔBCD, $\angle DBC = 90^0$, and BD = 24. To the nearest tenth, calculate the degree measure of $\angle BDC$.



B) A regular pentagon is inscribed in a circle of radius 30 inches. Calculate to the nearest tenth of an inch the length of a diagonal of the pentagon.

C) A 180 foot tall antenna is located on top of a building. Some distance from the building the angle of elevation of the top of the antenna is 64.3 degrees. From a point 200 feet farther from the building, the angle of elevation is 53.4 degrees. To the nearest integer, calculate the height of the building.