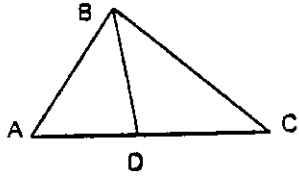


Geometry Team Question # 1

Given the figure with  $m\angle A = 25$ ,  $m\angle C = 81$ ,  $AD = 4$ ,  $CD = 3$ ,  $AB = 8$ ,  $BC = 6$ . Find  $m\angle ADB$ .

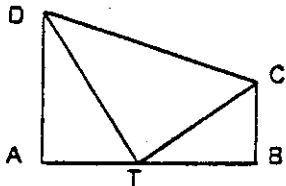


Geometry Team Question # 2

An equilateral triangle with sides measuring 12 cm is inscribed in a circle, and a second circle is inscribed in the triangle. Find the sum of the areas of all three figures to the nearest hundredth of a square centimeter.

Geometry Team Question # 3

Given:  $\overline{DA} \perp \overline{AB}$ ,  $\overline{CB} \perp \overline{AB}$ ,  $DC = 4\sqrt{5}$ ,  $m\angle ATD = 60$ ,  $m\angle BCT = 60$ .  
What is the length of  $AB$  if the ratio of the perimeter of  $\triangle TBC$  to the perimeter of  $\triangle DAT$  is 1:3?



Geometry Team Question # 4

The diagonal of a square has endpoints  $(2,5)$  and  $(5,1)$ . Find the endpoints of the other diagonal.

Geometry Team Question # 5

Given  $\triangle ABC$  in which the median and the altitude from angle B are one and the same segment. If  $AB = 18 - 7x$ ,  $BC = x^2 + x - 2$ ,  $CA = 3x^2 - 5x + 1$ , what is the perimeter of the triangle?

Geometry Team Question # 6

On a graph, a path is plotted by connecting points with segments. The path starts at  $(7,-3)$ , connects to  $(8,1)$ , then to  $(4,11)$  and ends at  $(18,6)$ . Find the absolute value of the difference, to the nearest tenth, between the length of the path and the distance between the starting and ending points.

Geometry Team Question # 7

The exterior angle of an equiangular polygon equals  $40^\circ$ . Find the total number of diagonals of the polygon.

Geometry Team Question # 13

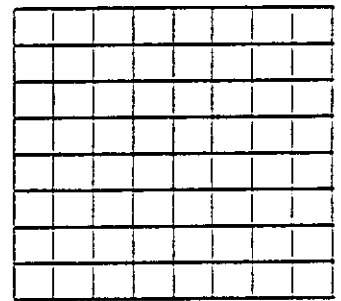
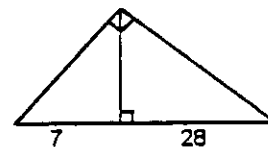


FIGURE 3

How many squares are in Figure 3?

Geometry Team Question # 14

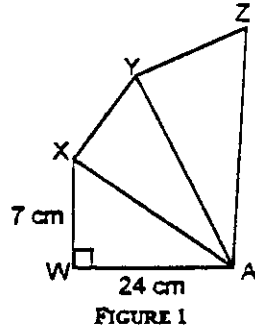
Find the sum of the perimeter and area of this right triangle with lengths as shown.



Geometry Team Question # 8

January Regional

In Figure 1, all the triangles are similar. Find the area of pentagon AWXYZ to the nearest square centimeter.

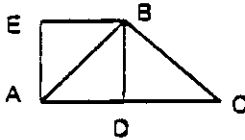


Geometry Team Question # 9

A man is standing at the top of a ladder leaning against a building. The foot of the ladder is 14 feet from the wall. The foot of the ladder accidentally slid away from the base of the building a distance of 4 feet, and the man dropped a distance of 1.35 ft. How long is the ladder, to the nearest foot?

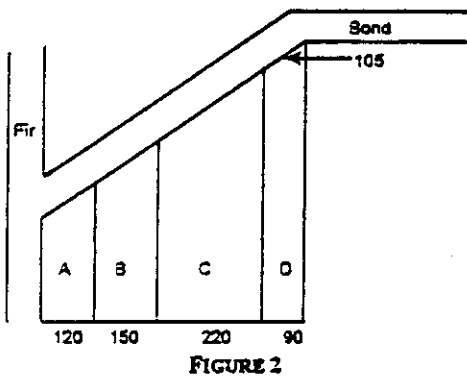
Geometry Team Question # 10

Given the isosceles triangle ABC with  $AB = BC$  and the square ADBE with  $AE = 4\sqrt{2}$ . Find the length of the median from vertex A to  $\overline{BC}$ .



Geometry Team Question # 12

Geometry Team Question # 11



$E$  = sum of the measures of all exterior angles of a regular dodecagon

$S$  = sum of the interior angles of a regular nonagon

$N$  = number of sides of a regular decagon

Find  $\frac{E - S}{N}$

In figure 2, four lots marked A, B, C, and D, with parallel side boundaries, all have frontages on Bond Street. The width of each lot is given, and the frontage of Lot D is also known. All measurements are given in meters. Find the sum of the frontages for the other three lots to the nearest meter.