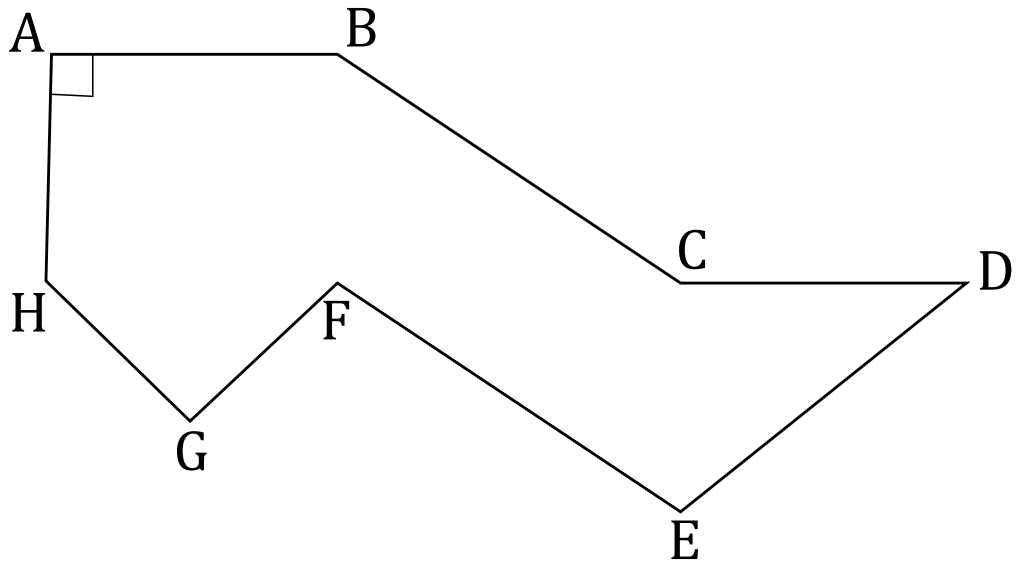
Problem of the Week
Problem B
A Dimension of Irregularity

You are given the following distances between the vertices of the irregular polygon in the diagram below.

$$AH = BF = CE = 4\,\text{cm}, \text{ and } AB = HF = CD = 5\,\text{cm}$$

In addition, you are told that the sides BC and FE are equal in length, and the points H, F, C, and D lie on the same straight line.

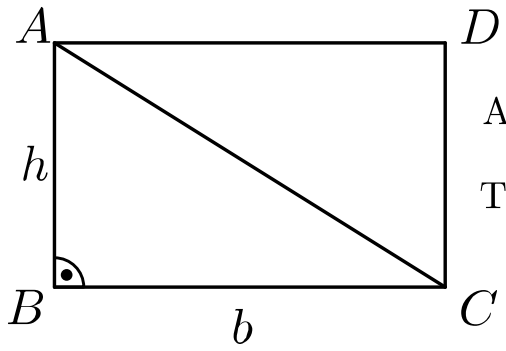


a) Describe how you would find the area of this irregular polygon. Include a description of what other measurements you would need in order to find the area.

b) Make a geometric pattern with four copies of this polygon, using rotations and/or reflections. Colour your pattern in a way that pleases you.

Did You Know?

To find the area of a triangle, multiply the length of the base (b) times the height (h) and divide by 2. The base can be any side of the triangle but the height is a line segment perpendicular to the particular base from the opposite vertex.



Area of Rectangle $ABCD = b \times h$

Thus, Area of Triangle $ABC = b \times h \div 2$