

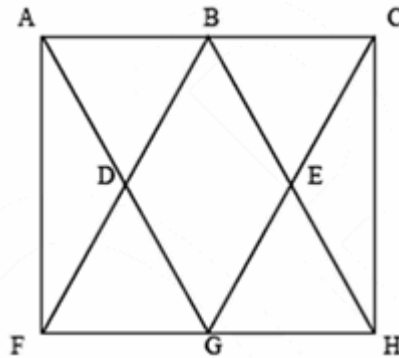
Window “Pain”

Part 1:

Your best friend’s newest blog entry on FaceBook reads:

Last night was the worst night ever! I was playing ball in the street with my buds when, yes, you guessed it, I broke my neighbor’s front window. Every piece of glass in the window broke! Man, my Mom was soooooooooooooo mad at me! My neighbor was cool, but Mom is making me replace the window. Bummer!

It is a Tudor-style house with windows that look like the picture below.



I called the Clearview Window Company to place an order. What was really weird was that the only measurements that the guy wanted were $\angle BAD$ (60°), $\angle BCE$ (60°), and \overline{AG} (28 inches).

I told him it was a standard rectangular window and that I had measured everything, but he told me not to worry because he could figure out the other measurements. It is going to cost me \$20 per square foot, so I need to figure out how to make some money real quick. How did the window guy know all of the other measurements and how much is this going to cost me?

Because you are such a good best friend, you are going to reply to the blog by emailing the answers to the questions on the blog along with detailed explanations about how to find every angle measurement and the lengths of each edge of the glass pieces. You will also explain how to figure out the amount of money he will need.

Part 2:

(Two weeks later)

You just received a text message from your best friend and were told that the order of glass had been delivered to the house by Package Express. Unfortunately, one of the pieces was broken upon arrival and needed to be reordered by Clearview Window Company. Because you are very curious, you think it would be a good idea to determine the probability of each piece of glass being the one broken.

Write another email to your friend that explains the probabilities and how you determined them.