Lone-Chooser Method

Arthur, Brian and Carl decide to divide the cake below using the lone-chooser method.

The players value different parts of the cake as follows:

Arthur likes chocolate and orange equally well, but hates strawberry and vanilla.

Brian likes chocolate and strawberry equally well, but hates orange and vanilla.

Carl likes likes chocolate and vanilla equally well, but hates strawberry and orange.

Suppose Carl and Arthur are dividers with Carl making the first cut.

(a) Draw a possible first division by Carl (label the angles) and indicate which piece Arthur would take.

(b) Based on the first division you gave in (a), draw a possible second division that Carl might make.

(c) Based on the first division you gave in (a), draw a possible second division that Arthur might make.

(d) Based on the second divisions of Carl and Arthur describe a possible fair division of the cake.

(e) For the final fair division you found in (d), find the total value of each share (as a percentage of the total cake) in the eyes of the player receiving that share.