

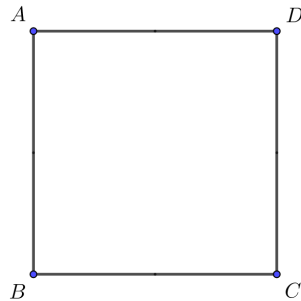


Problem of the Week

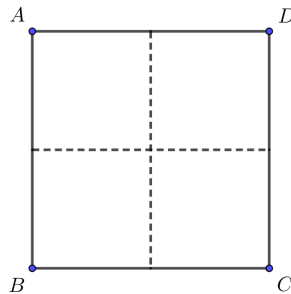
Problem A

Origami

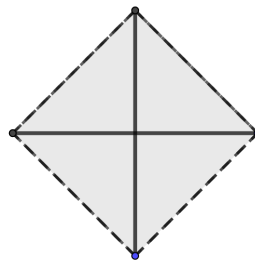
Laila starts with a square piece of paper. Starting at one corner and moving around the square, she labels the corners A , B , C , and D .



Laila folds the paper in half, by folding side AB onto side DC , to form a rectangle. She opens up the paper and folds it again to form another rectangle by folding side AD onto side BC . When she opens up the paper this time, she sees two creases in the paper as shown below.



The centre of the square is the point where the two creases intersect. Now, she takes each corner of the square and folds the paper so that each corner touches the centre of the square. Folding all four corners in this way forms another smaller square made up of four triangular regions as shown below.



What fraction of the area of the original square is the area of this smaller square? Justify your answer.