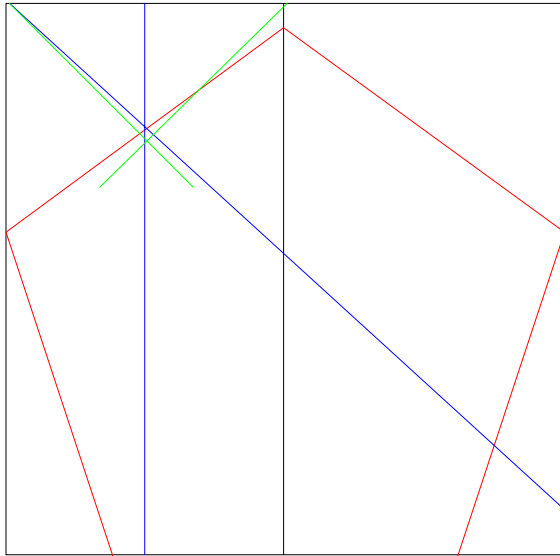


Fred Rohm's Method for Folding a Regular Pentagon from a Square, Improved

by James M. Clark

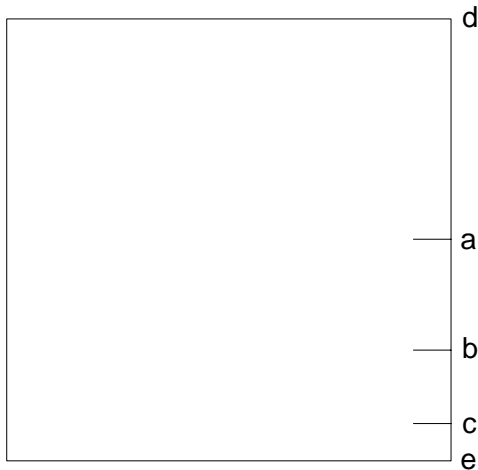


Overview

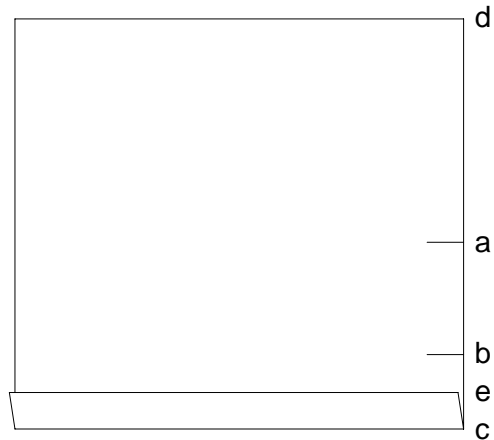
This method creates the largest regular pentagon having one side of the pentagon parallel to a side of the square. (The largest pentagon is symmetric on the diagonal of the square, and is about 1.25% larger.)

Fred Rohm's original method uses the landmark indicated by the intersection of the green lines in the diagram at the left. This landmark is too low by about $\frac{1}{51}$ of the side of the square. The improved method uses the landmark indicated by the intersection of the blue lines in the diagram. This reduces the geometric error to about $\frac{1}{709}$ of the side of the square, which means that most of the error will be human error.

Instructions

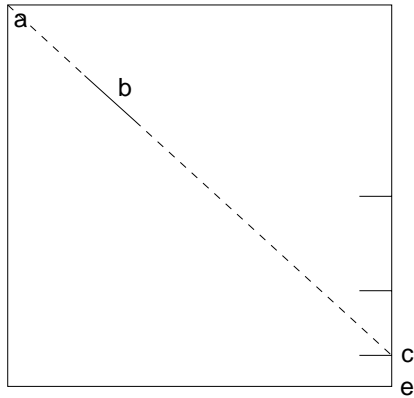


1. Mark the mid point **a** of the side of the square by folding corner **e** up to corner **d** and pinching at the edge only. Then mark the 1/4 point **b** by folding corner **e** up to the mid point **a**.
Landmark **c** is the next step.

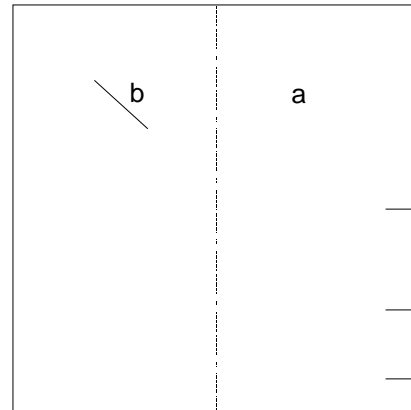


2. Fold corner **e** up so that distance **b-e** and distance **e-c** are equal, and pinch at **c** only, and unfold.

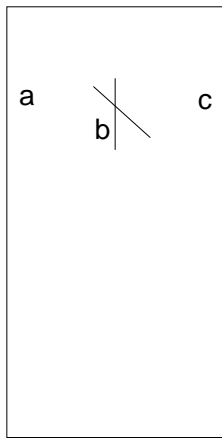
Fred Rohm's Pentagon



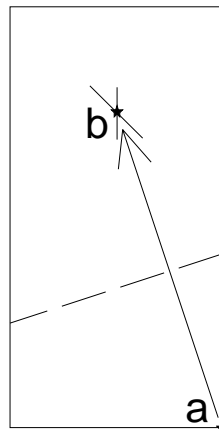
3. Fold from corner **a** to the landmark **c**, pinching only at the 1/4 point **b**, and unfold.



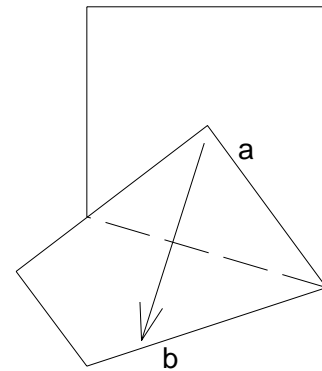
4. Mountain-fold in half, moving half **a** behind **b**.



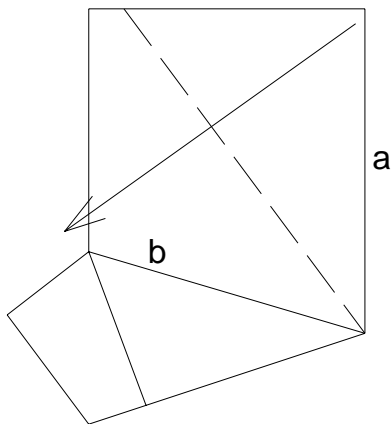
5. Make another crease at **b** by folding raw edge **a** over to folded edge **c**. Crease only near **b**, and unfold.



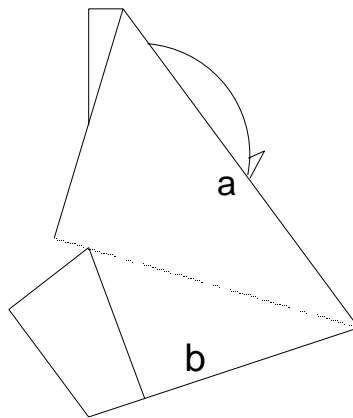
6. Valley-fold, placing corner **a** on the intersection of the creases at **b**.



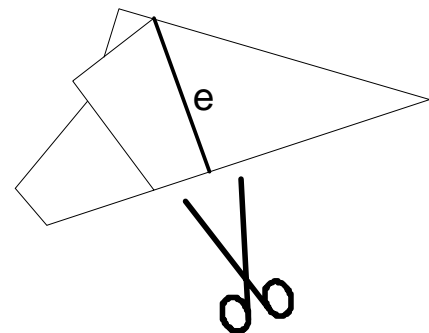
7. Valley-fold, placing edge **a** on edge **b**.



8. Valley-fold, placing edge **a** on edge **b**.



9. Mountain-fold, placing edge **a** behind edge **b**.



10. Cut through all layers along raw edge **e**, and unfold.