

With a single cut...

ROYAL INSTITUTION
MASTERCLASS

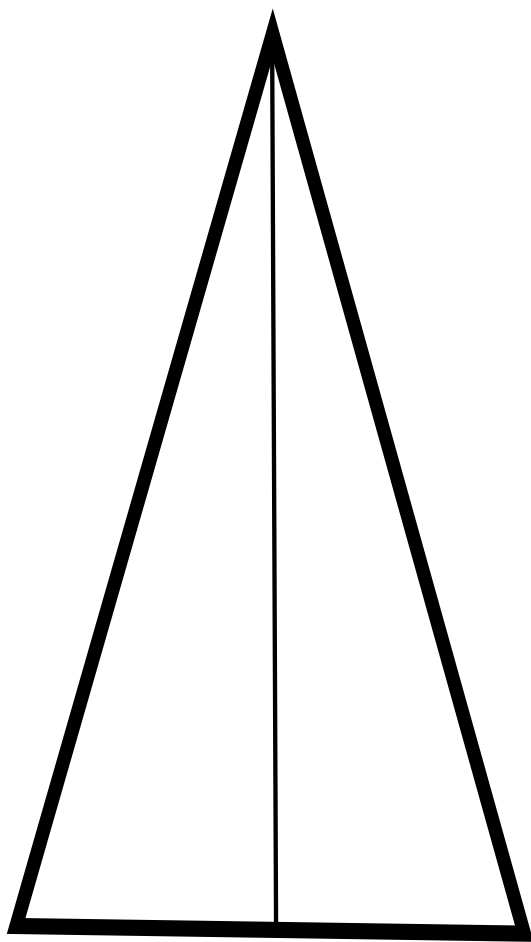
UNIVERSITY OF GLASGOW

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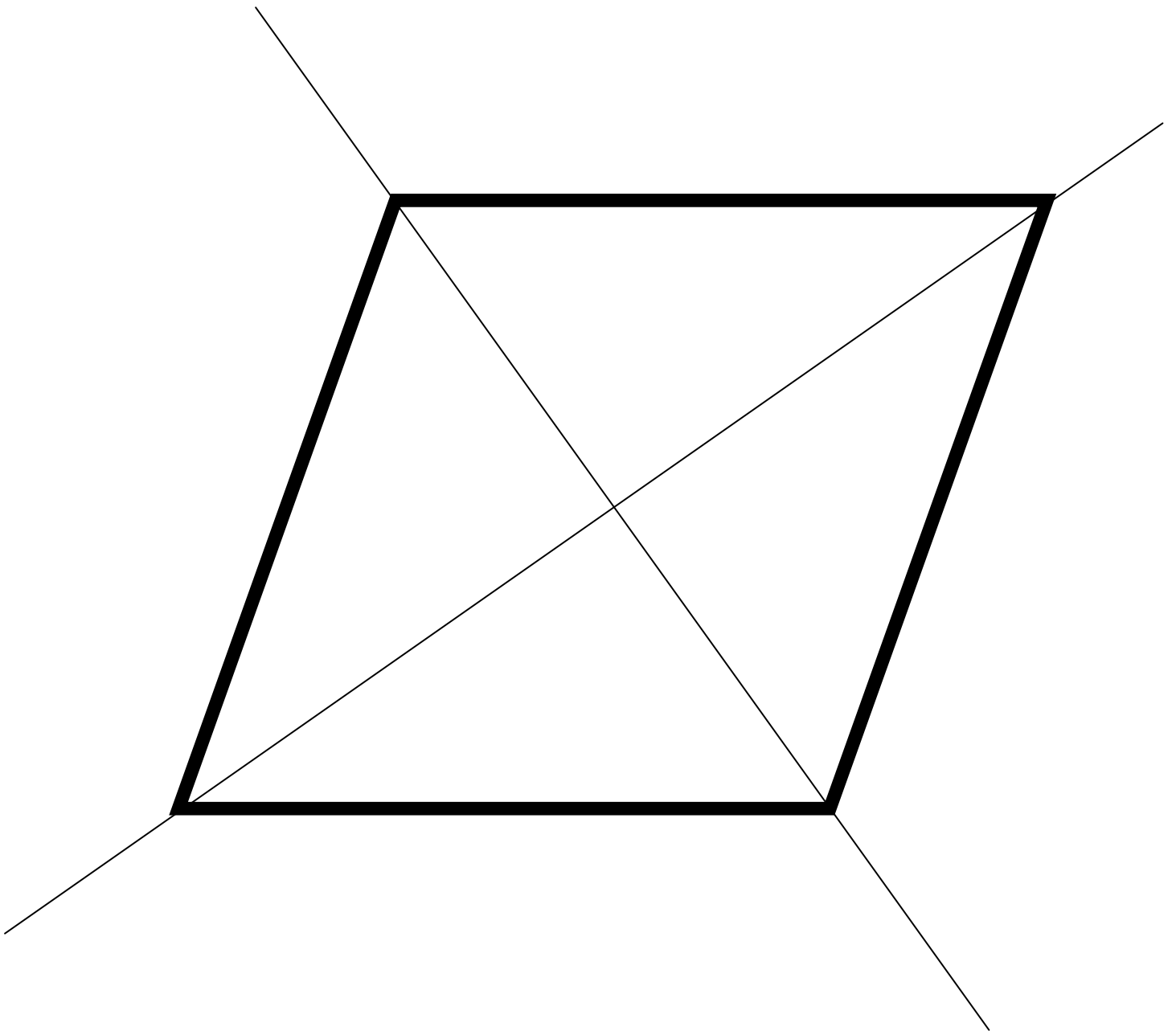
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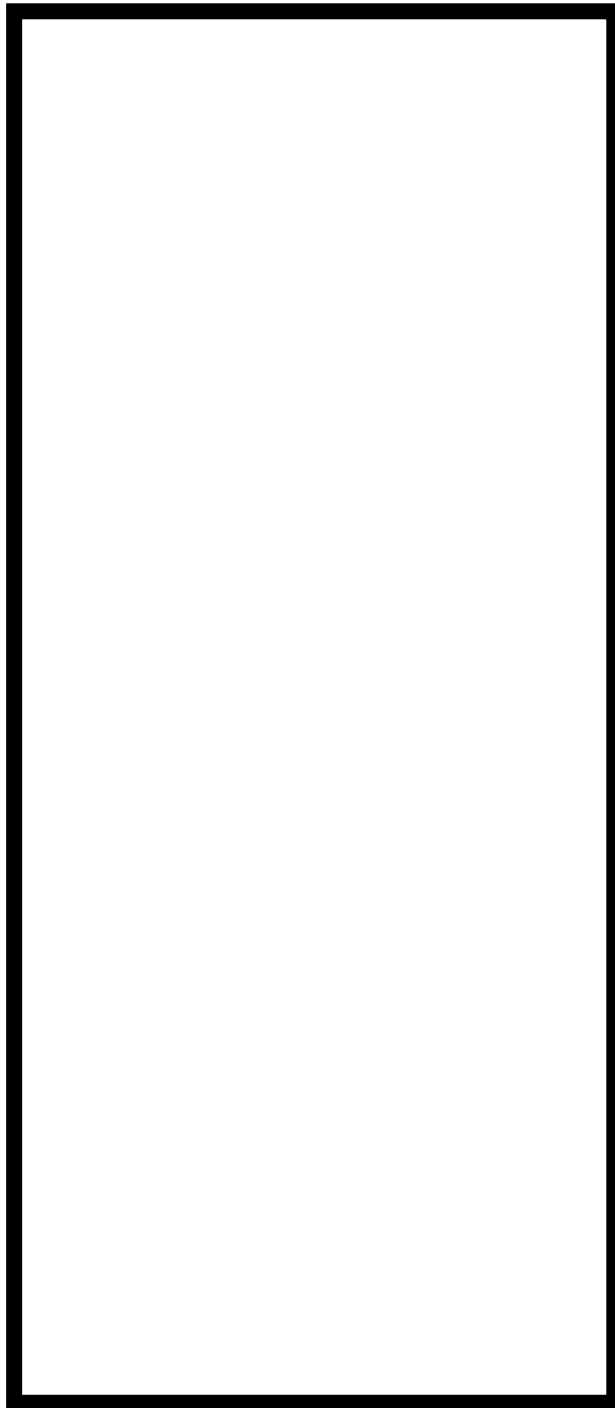
Create an isosceles triangle with a single cut. It is enough to make two creases of the paper. Notice that the symmetry helps.



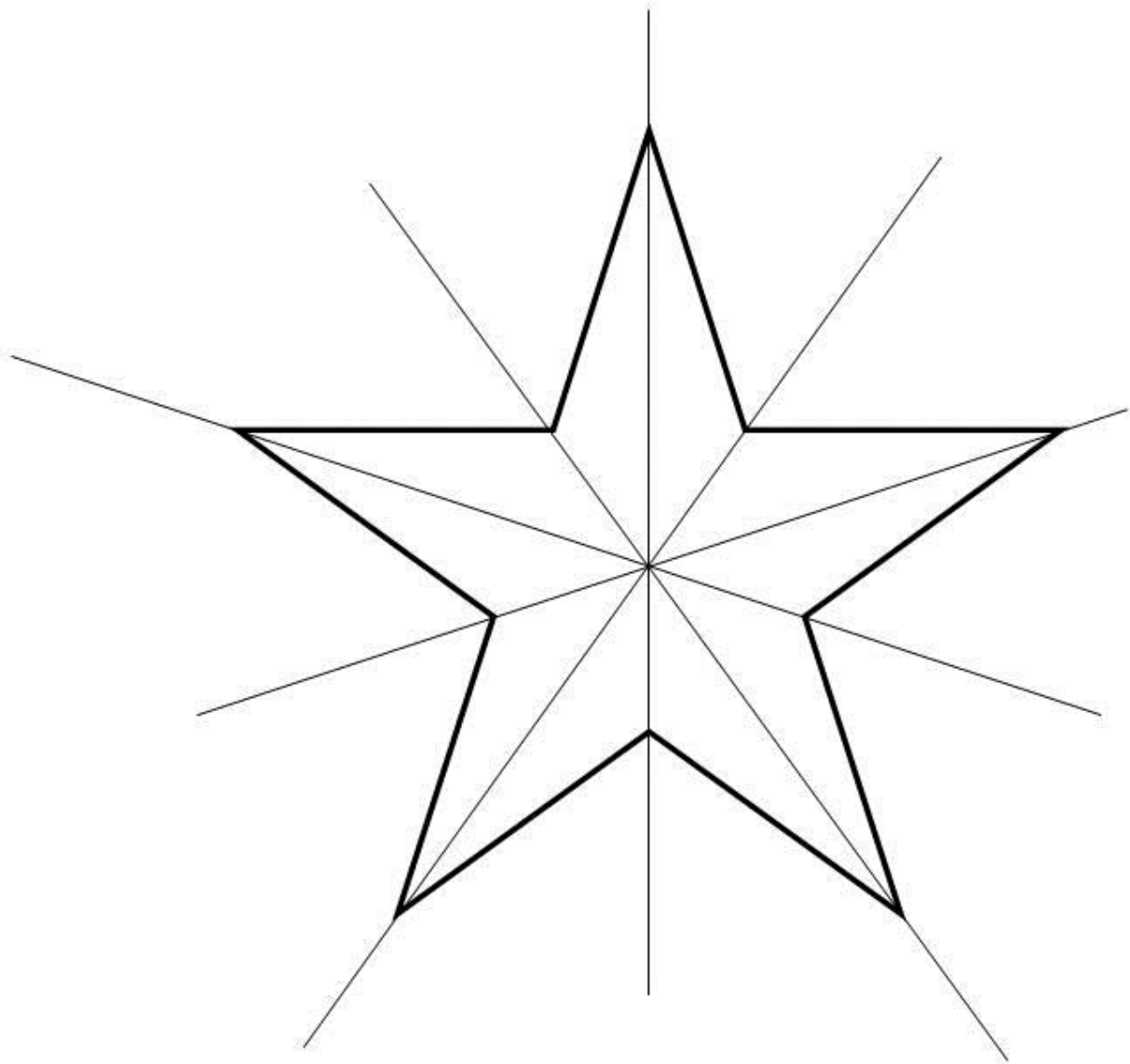
Now try to cut the rhombus by a single cut. Notice it has two axis of symmetry and just two folds are enough. You may detach the page so that it is easier to fold it.



A rectangle also has two axis of symmetry. Make three folds so that you get the rectangle by a single cut.

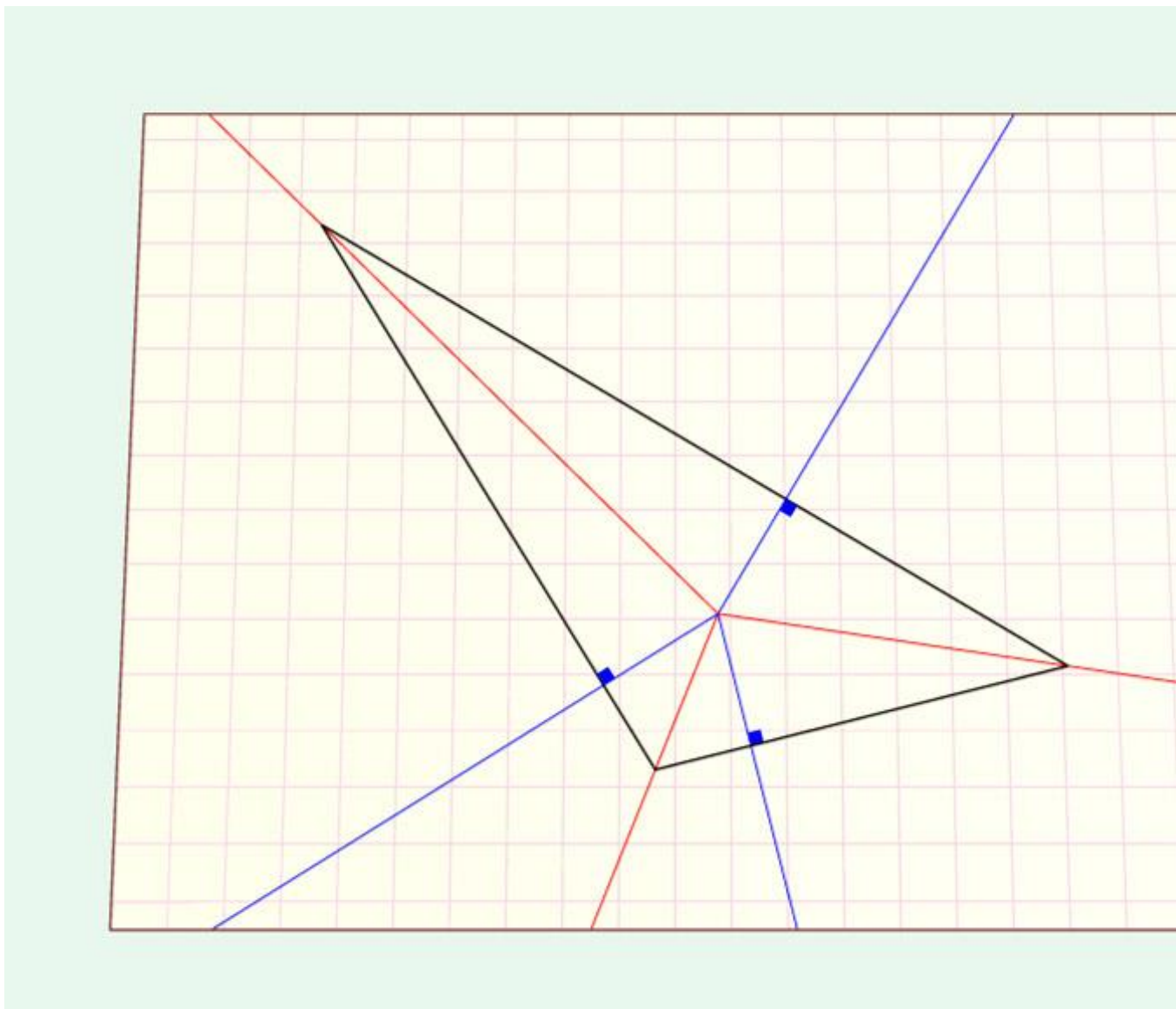


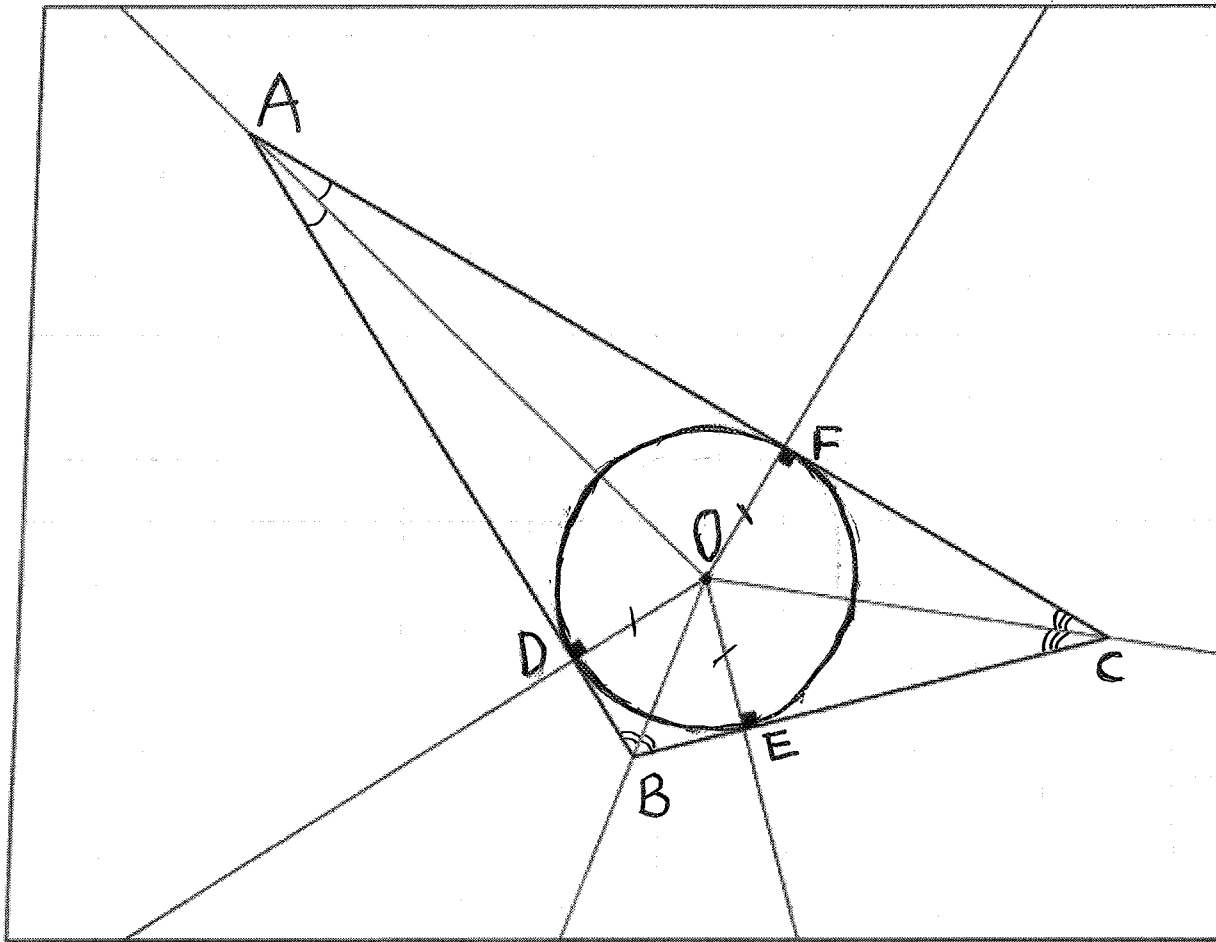
Here is yet another figure with symmetries. Make use of them when folding it.



Cutting an arbitrary triangle

We use the property that all the bisectors pass through a single point. Furthermore, the heights from this point to the sides of the triangle have equal lengths and they cut the triangle into three pairs of congruent right-angled triangles.





AO, BO, CO are the bisectors of the respective angles A, B, C;

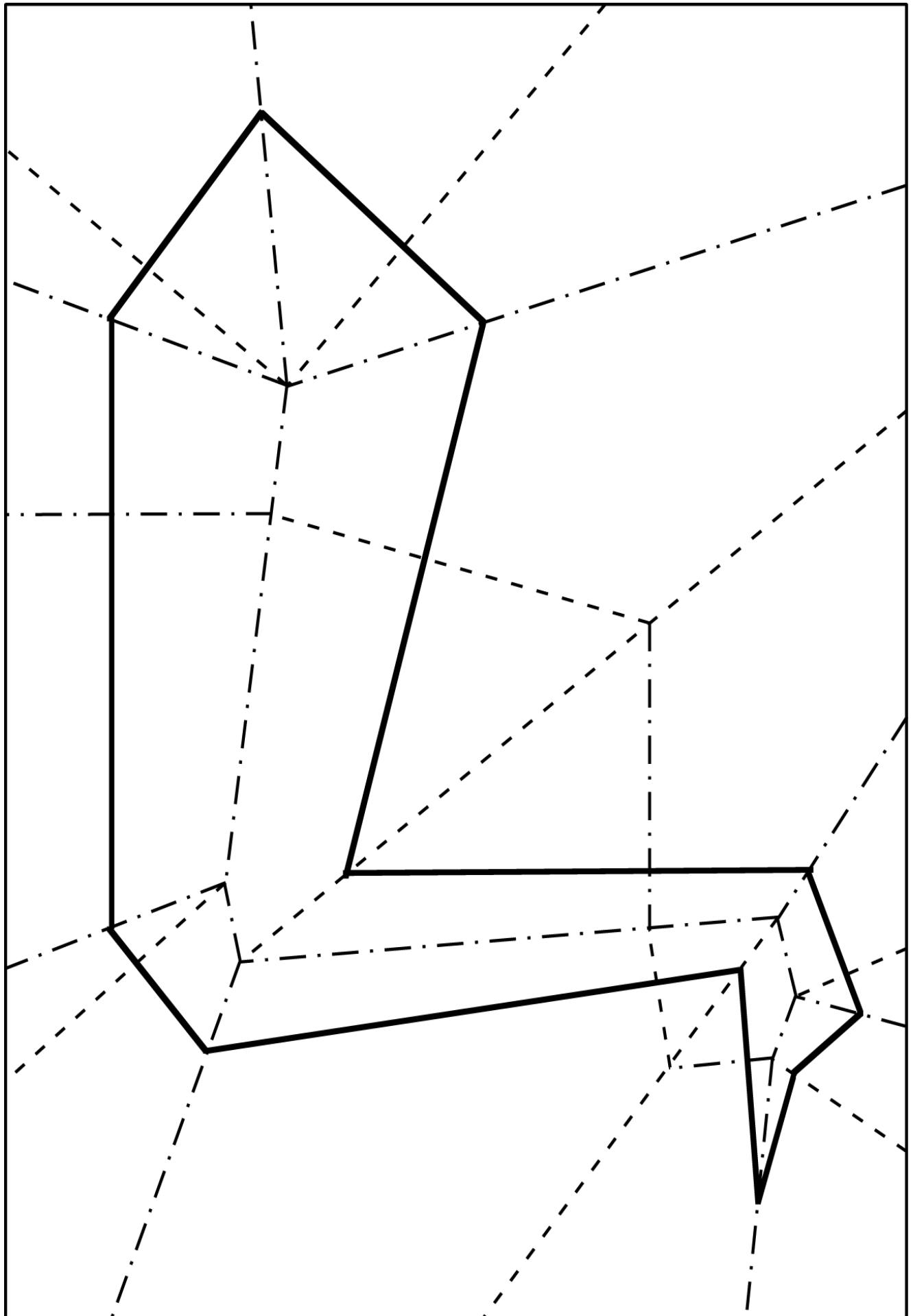
OD = OE = OF;

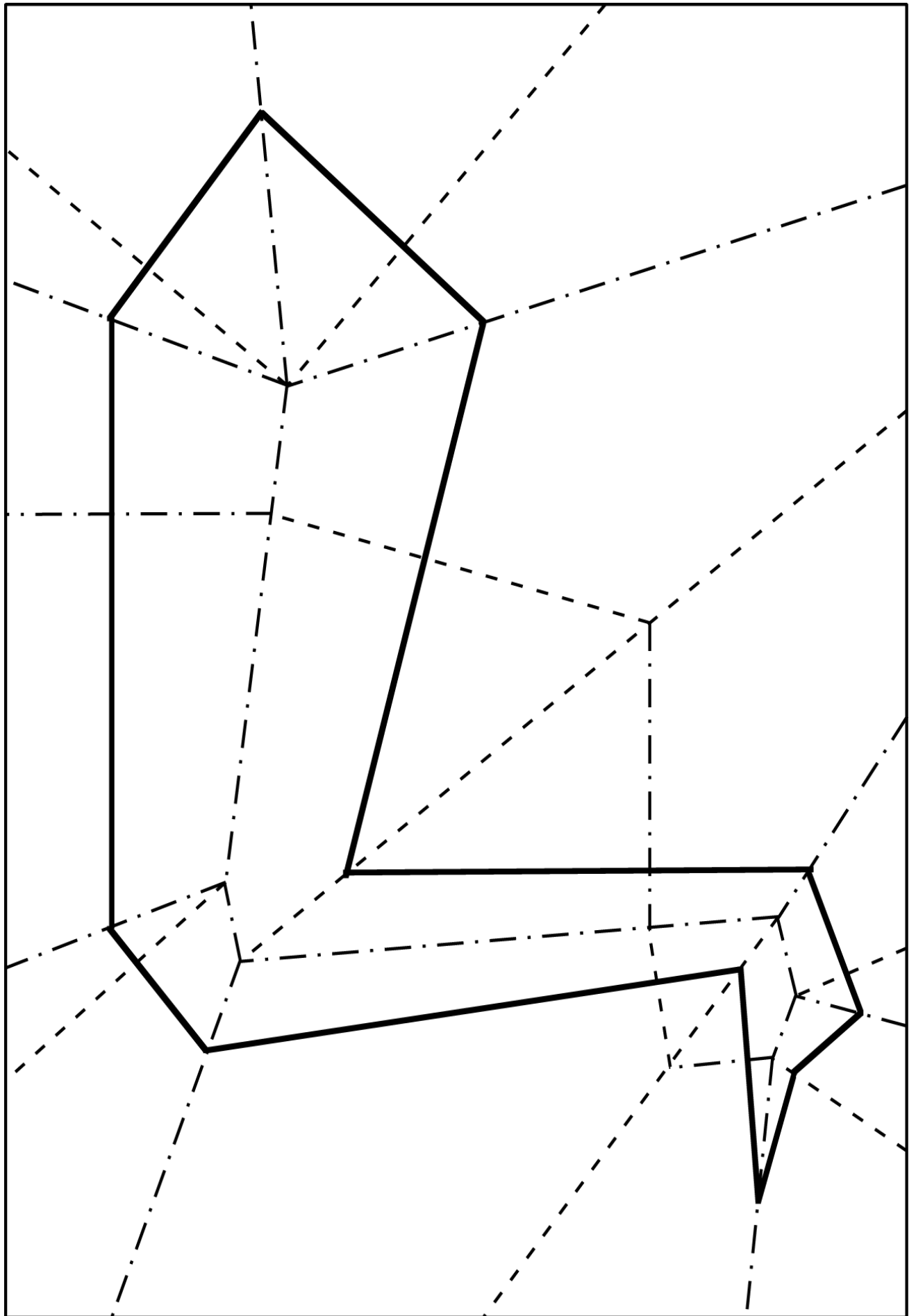
O is also the centre of the circle inscribed in the triangle ABC.

Remarkably, any polygon or even a collection of polygons can be obtained by a single cut after a suitable folding!

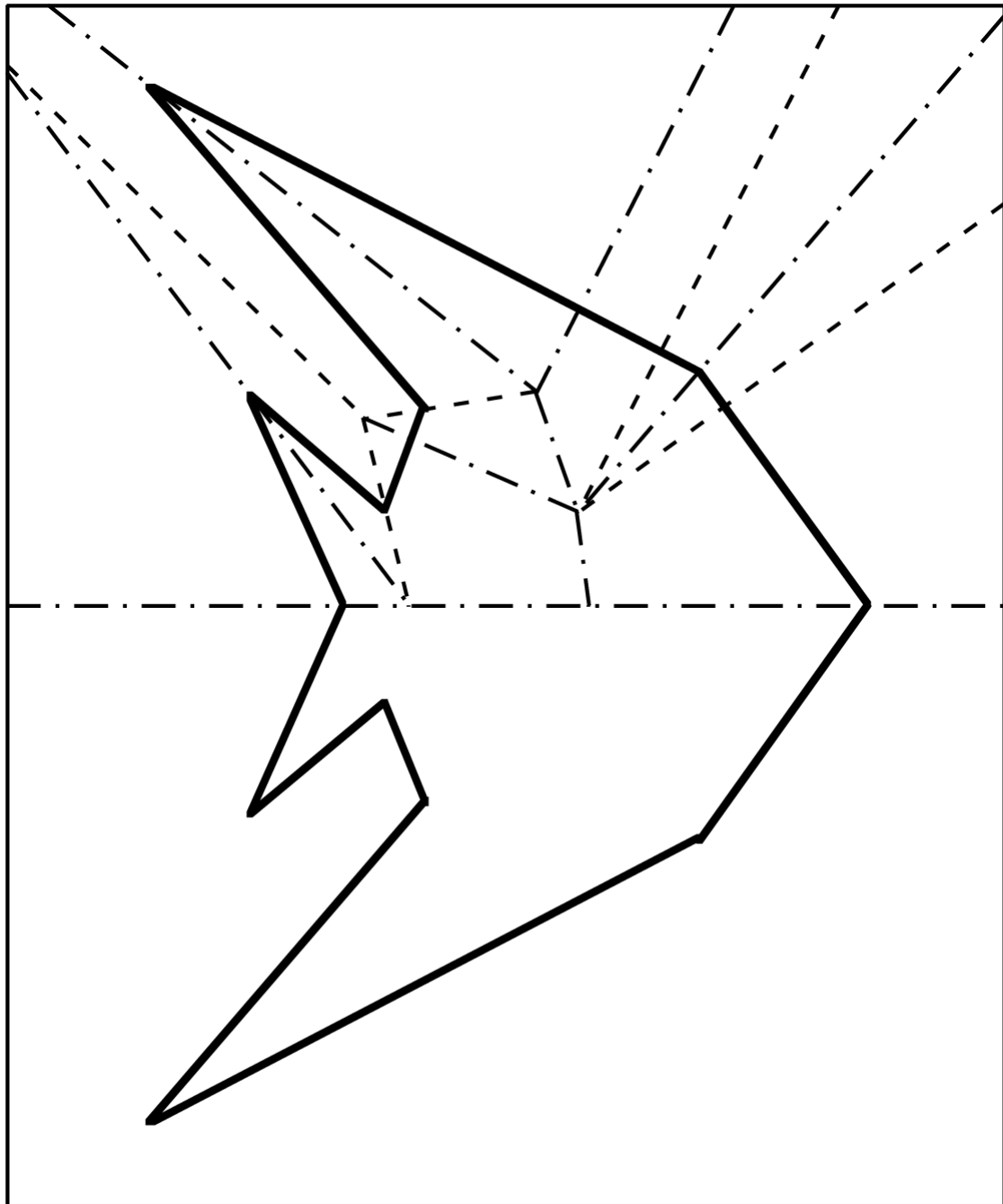
How to cut the **swan**:

1. Detach the next page with the drawn swan.
2. Crease the paper along each dashed or dot-dashed line so that a mountain-like crease is made along the line. For dashed lines recrease in the opposite direction to make a valley.
3. Fold the paper simultaneously along the dashed and dot-dashed lines so that the dot-dashed lines become mountains and dashed lines become valleys, and the sheet becomes flat.
4. Do a single cut along the line on the paper to reveal the figure.

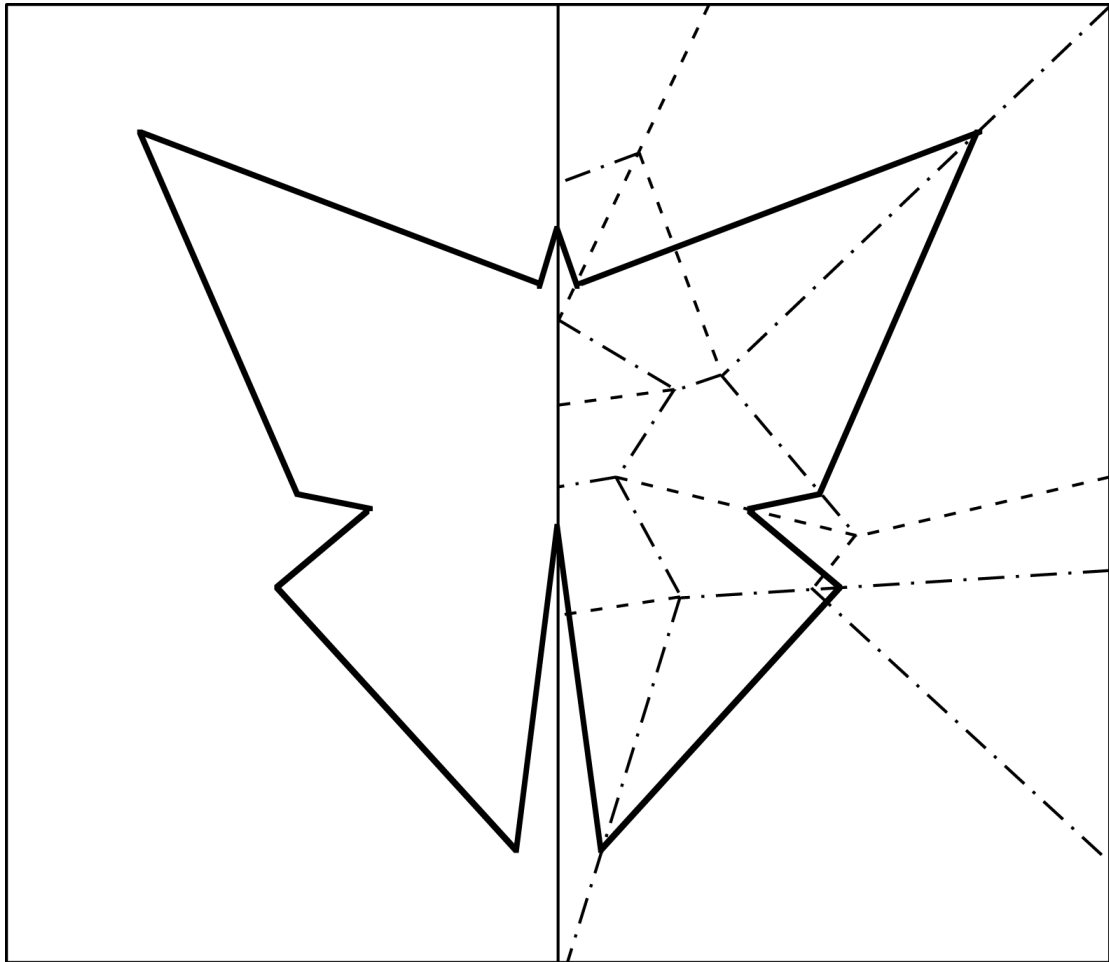




To cut the **angelfish** crease it first along the symmetry axis. Then make valleys and mountains for dashed and dot-dashed lines and fold the paper flat along them.



A **butterfly** also has a symmetry axis. Crease along it at first and then fold along the dashed and dot-dashed lines as you did with the angelfish and the swan.



References:

1. <http://www.etudes.ru/en/etudes/origami/>
2. <http://erikdemaine.org/foldcut/>