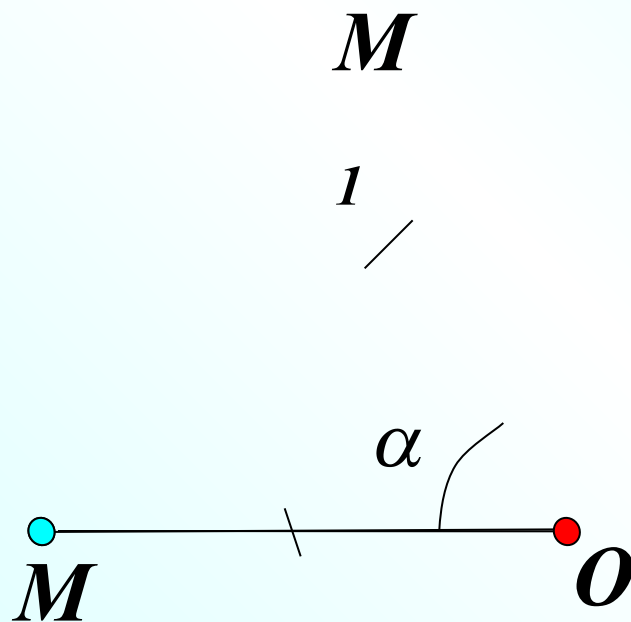


Поворот и параллельный перенос

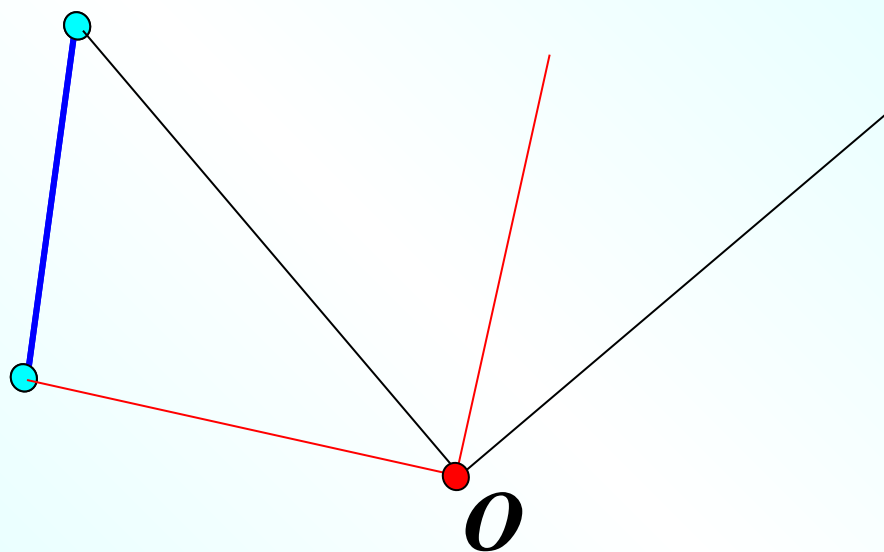
Л.С. Атанасян "Геометрия 7-9"

Поворотом плоскости вокруг точки O на угол α называется отображение плоскости на себя, при котором каждая точка M отображается в такую точку M_1 , что $OM = OM_1$ и угол MOM_1 равен α

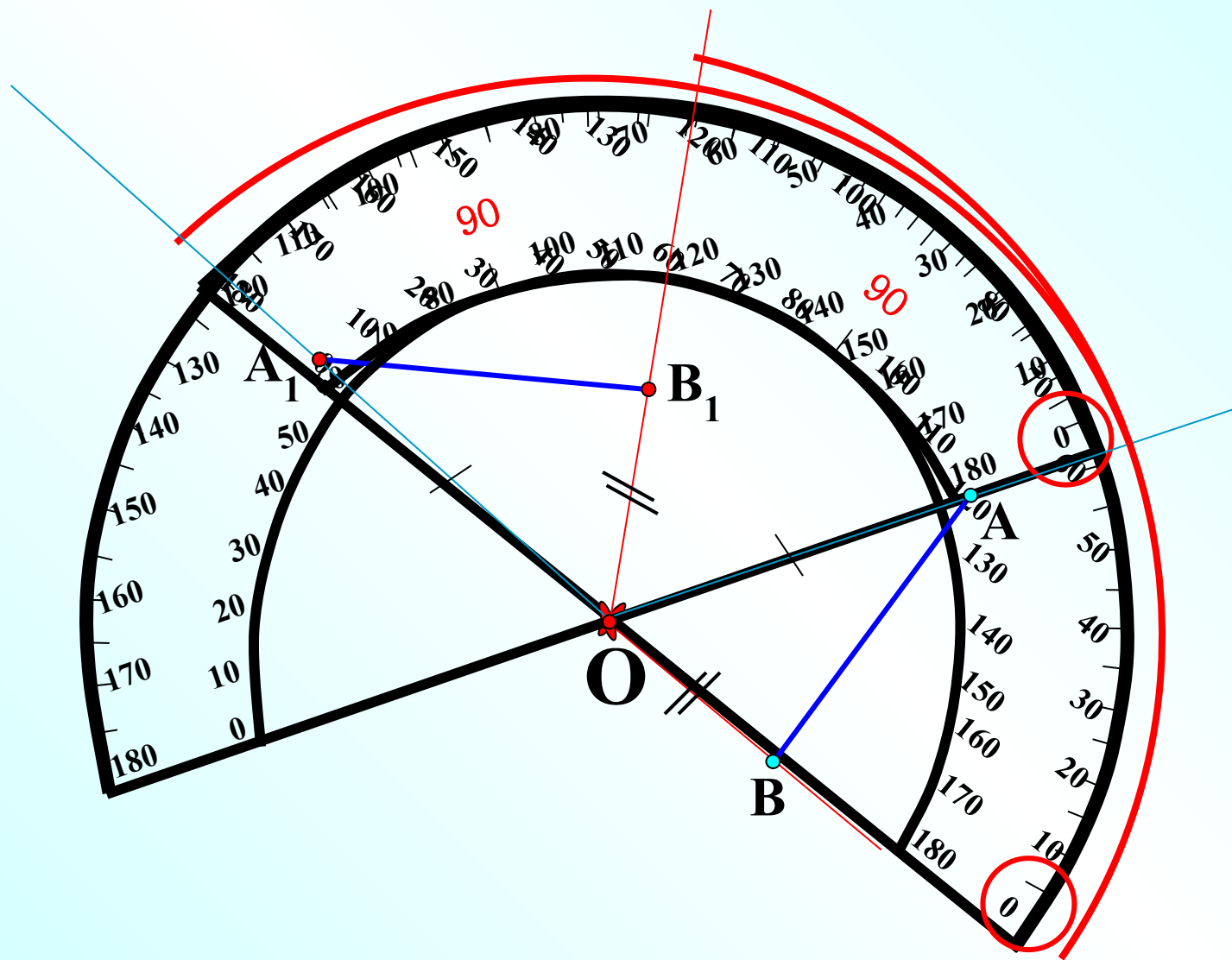


The diagram shows a mechanical linkage system on a circular scale. The scale is a semi-circle with two concentric arcs. The outer arc is marked from 0 to 180 degrees in increments of 10, with 0 at the right and 180 at the left. The inner arc is marked from 0 to 120 degrees in increments of 10, also with 0 at the right. A red '90' is marked on the outer arc. A grey lever arm is pivoted at a point labeled O (marked with a red dot) on the horizontal base line. The lever arm has a grey pivot at its other end, labeled M (marked with a grey dot). A blue line segment, representing a connecting rod, is attached to the lever arm at a point labeled P (marked with a blue dot) and to the inner arc at a point labeled N (marked with a blue dot). A red arc is drawn on the outer scale, starting from the 0 position and ending at the 90 position. A red circle highlights the 0 position on the outer scale. A black line segment connects the pivot point O to the point N on the inner arc. A black line segment also connects the pivot point O to the point M on the lever arm. The lever arm is shown in two positions, one solid grey and one dashed grey, indicating its range of motion. The connecting rod is shown in two positions, one solid blue and one dashed blue, indicating its range of motion. The entire system is set against a light blue background.

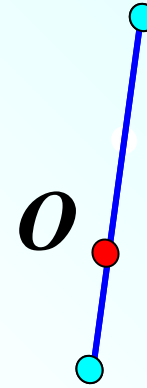
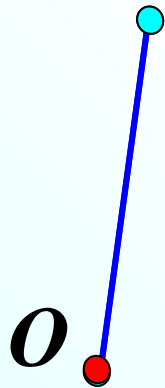
Поворот отрезка.



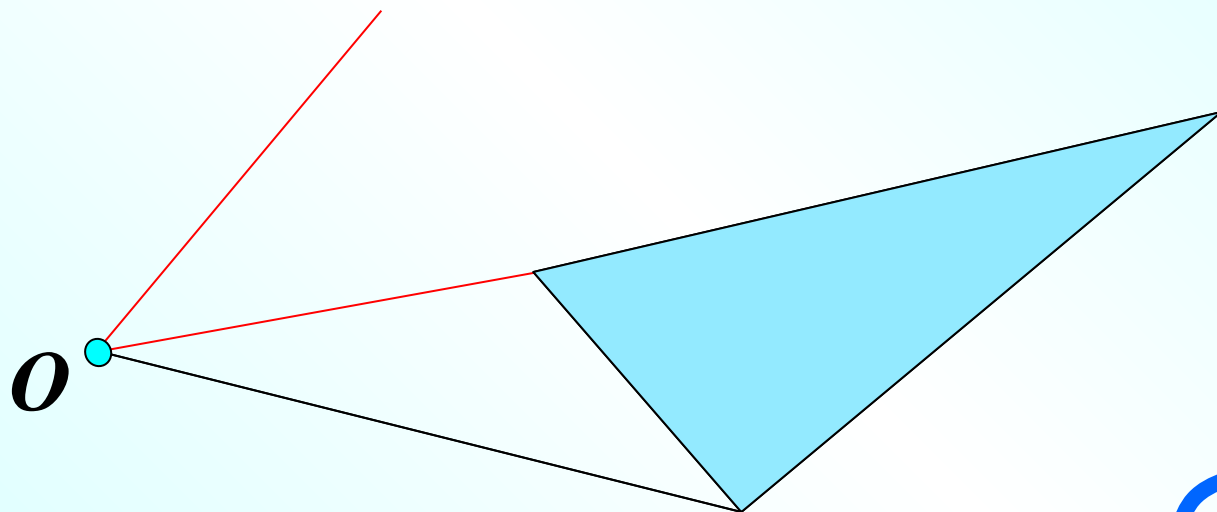
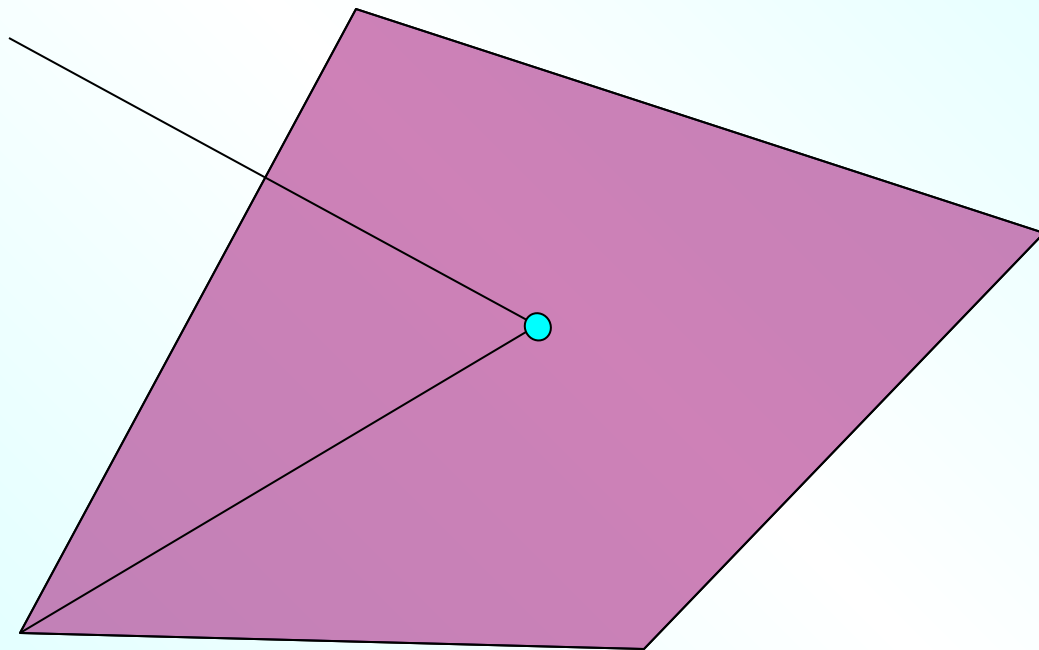
Угол поворота 120°



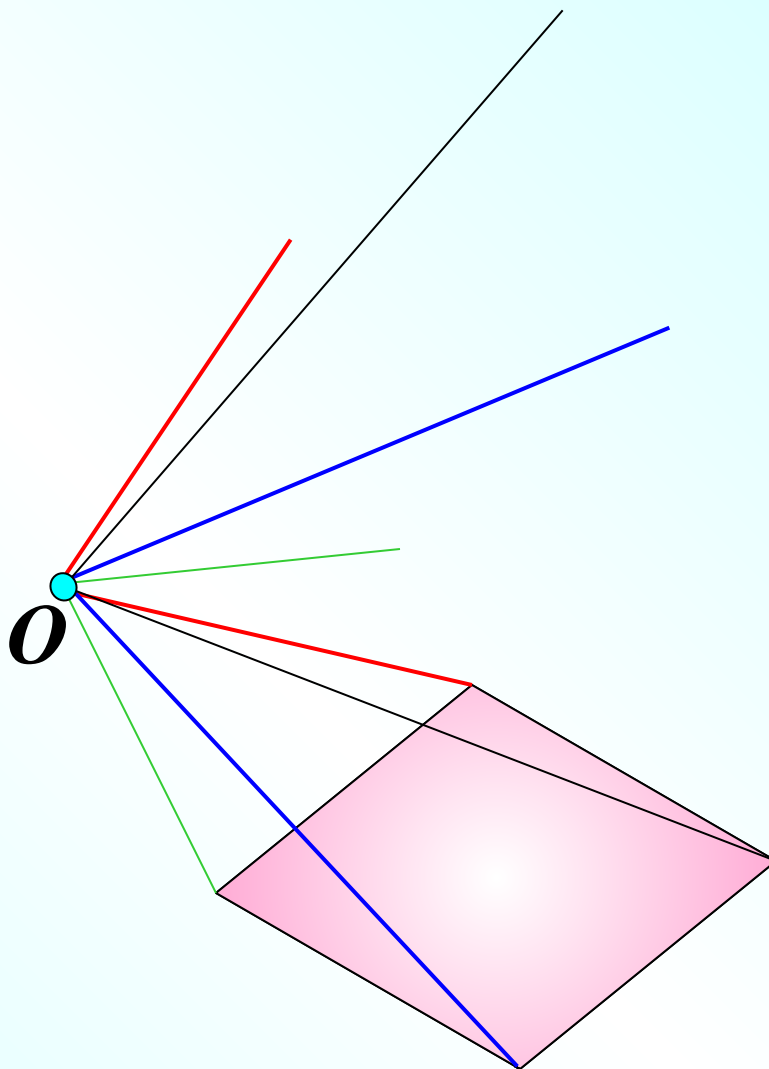
Поворот отрезка.

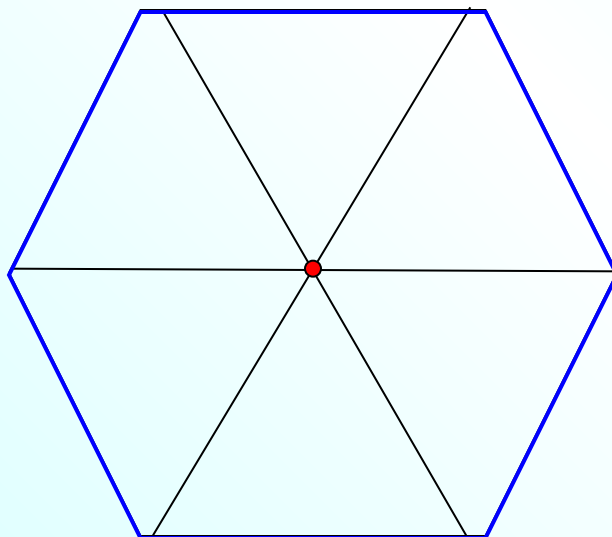
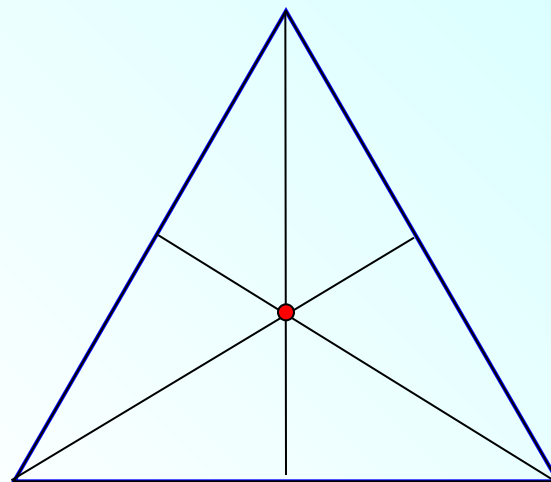
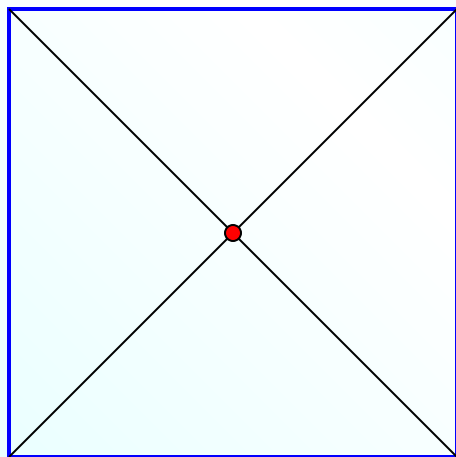


Центр поворота фигуры
может быть во внутренней
области фигуры и во
внешней...



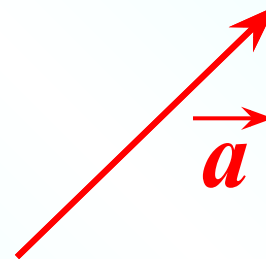
При повороте многоугольника надо повернуть каждую вершину.

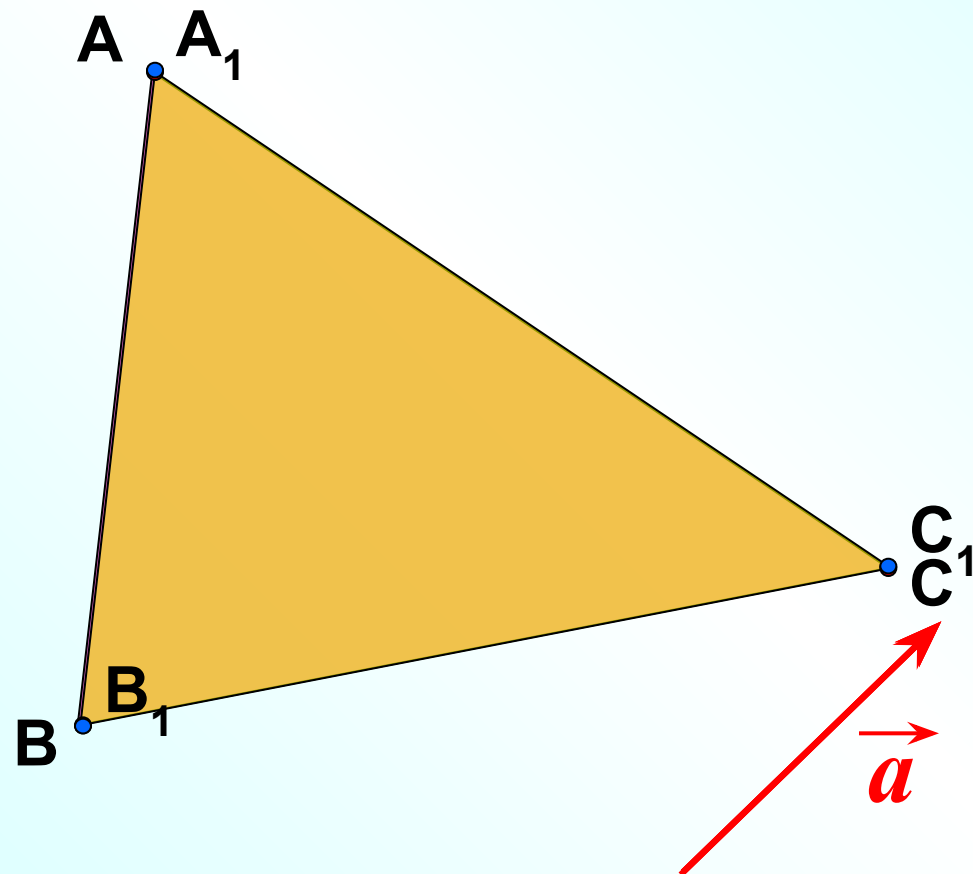


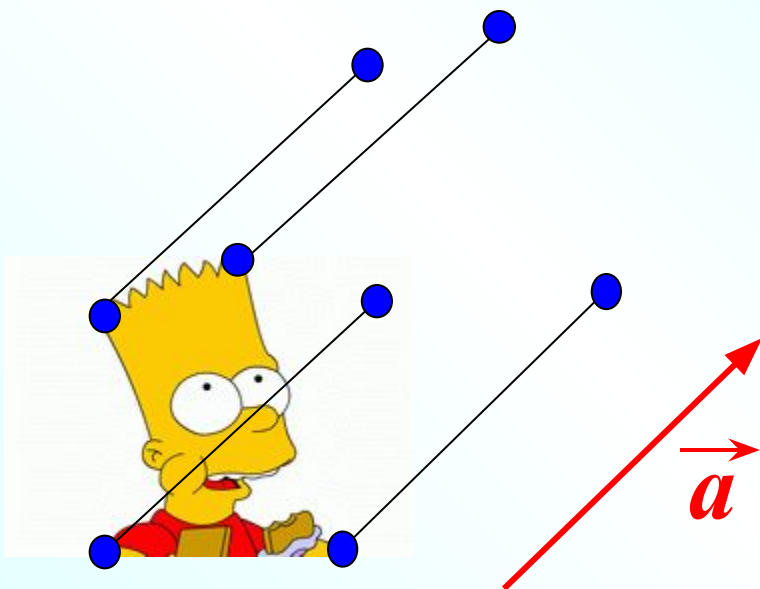


Параллельным переносом на вектор $\vec{a}$ называется отображение плоскости на себя, при котором каждая точка M отображается в такую точку M_1 , что вектор $\overrightarrow{MM_1}$ равен вектору $\vec{a}$

$M \cdot M_1$

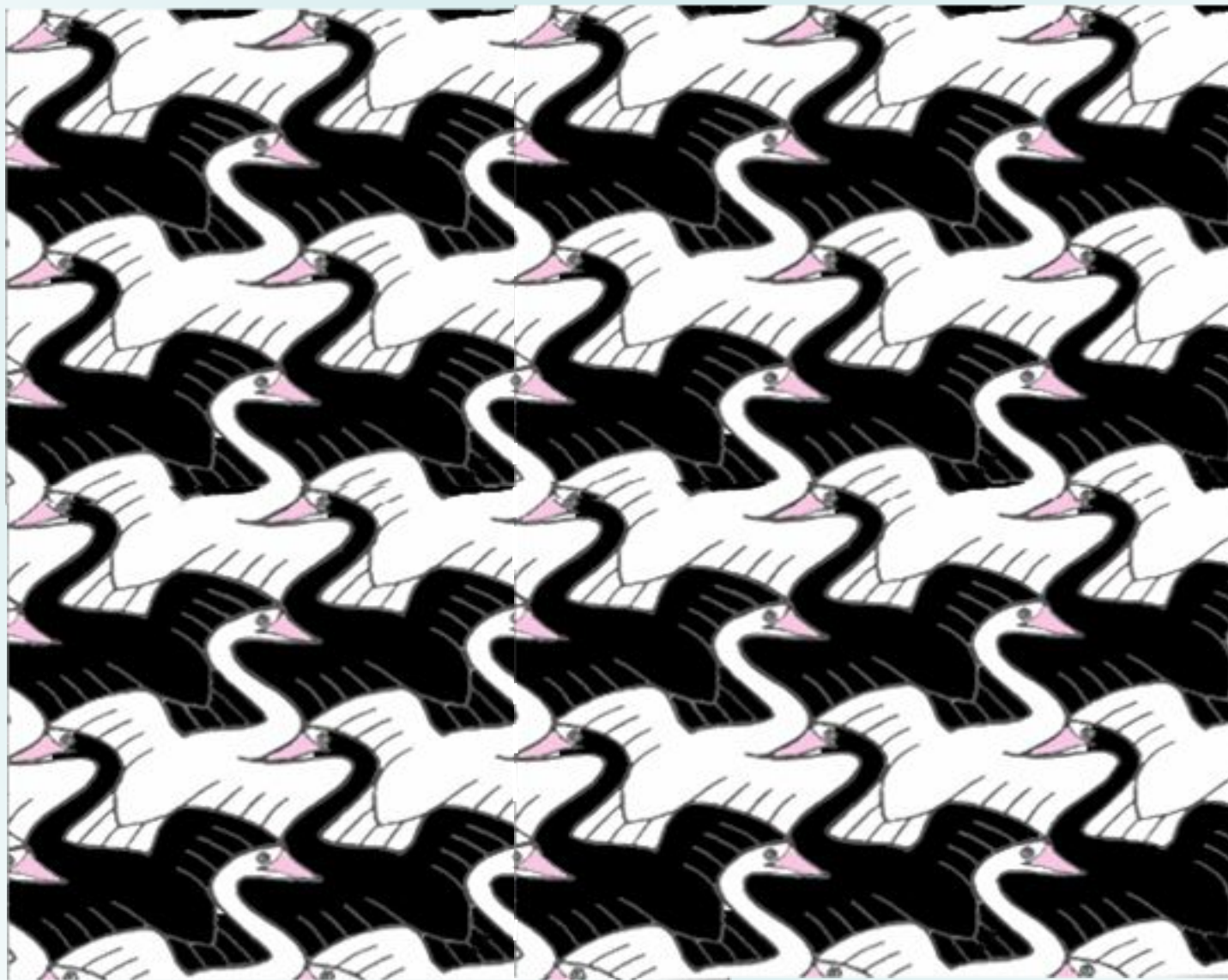




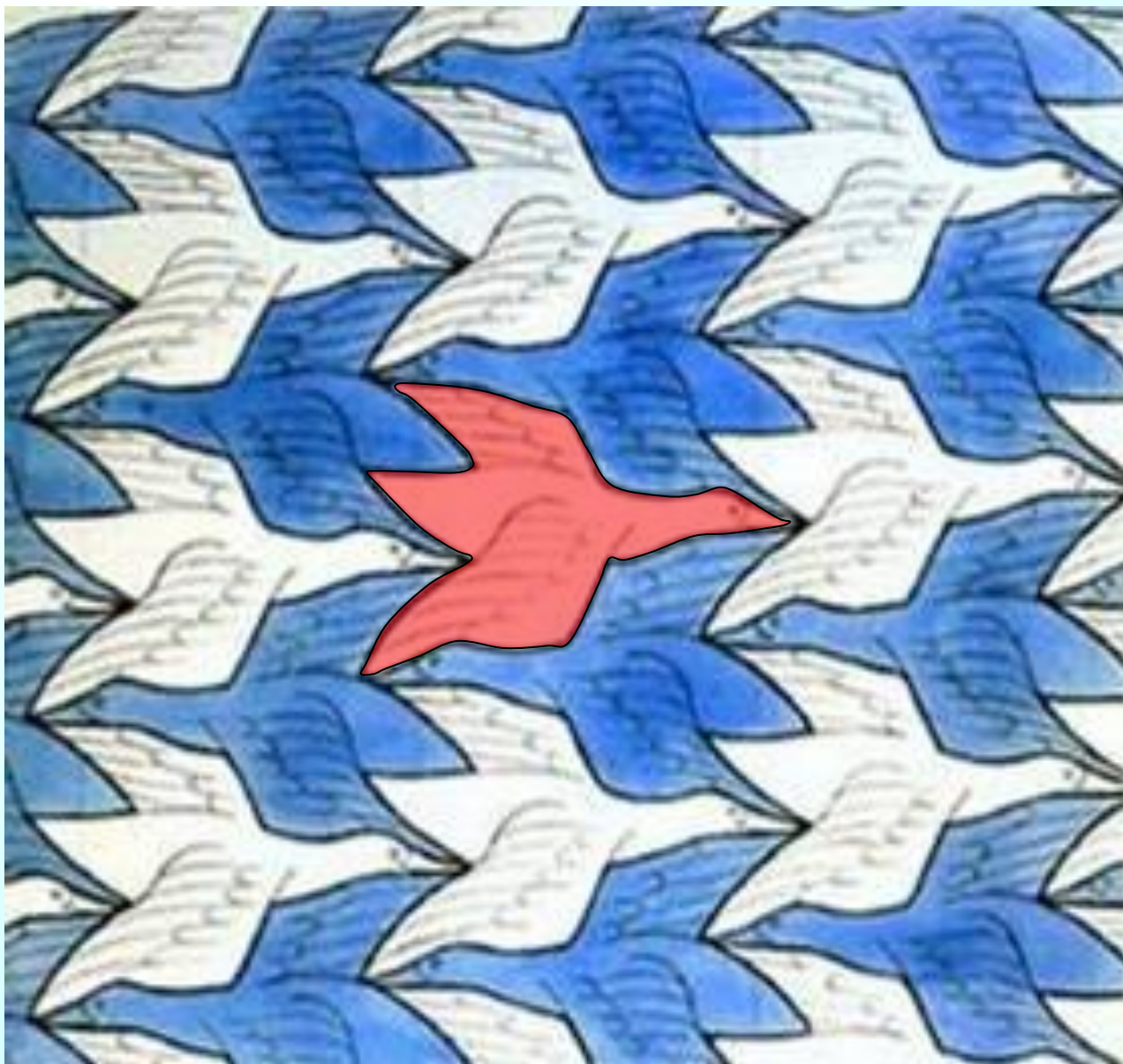


Савченко Миша. 9В класс.

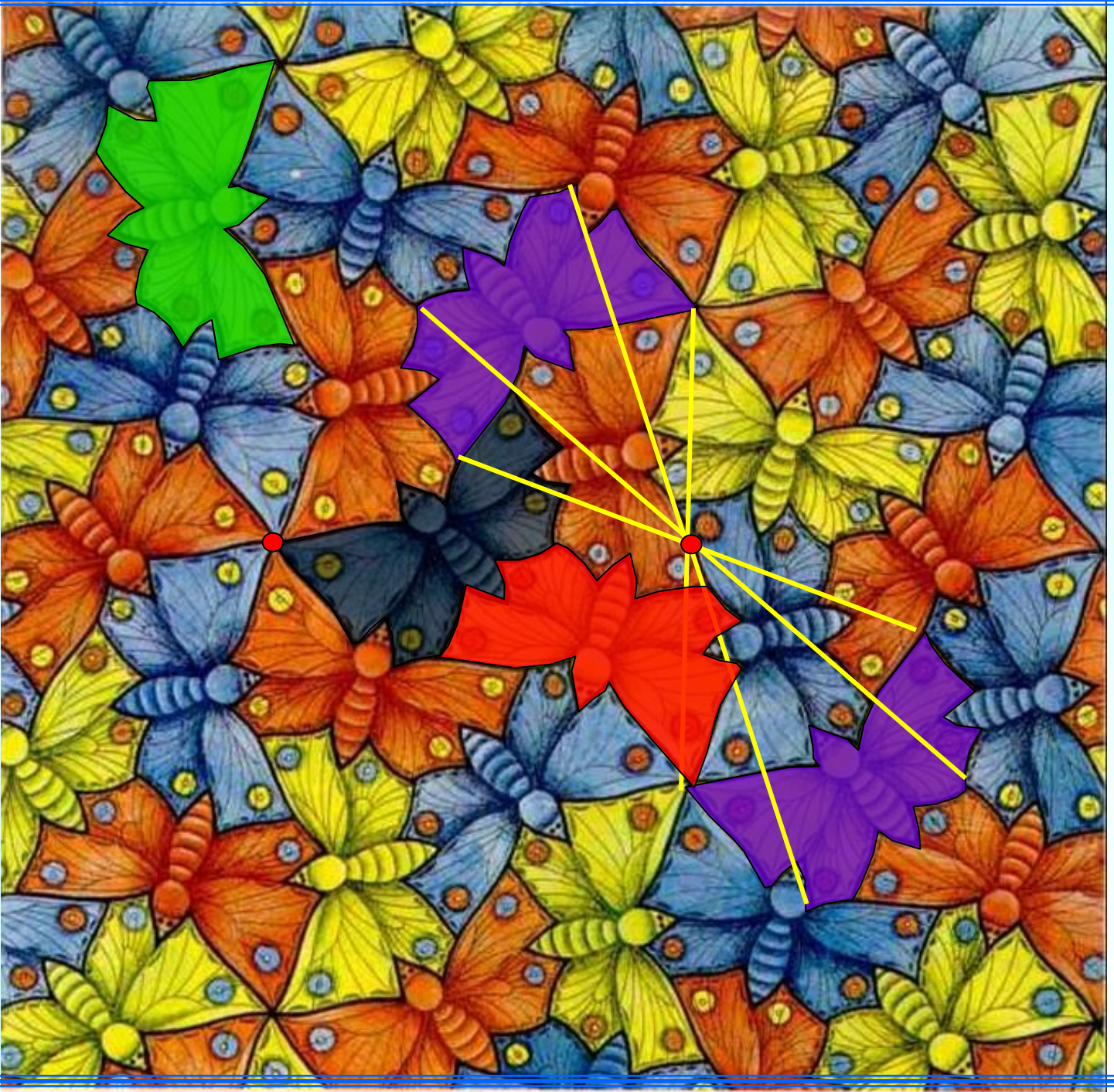
Движения на картинах М. Эшера.



Параллельный перенос











Использованы иллюстрации с сайтов

<http://www.worldofescher.com/>

<http://www.mcescher.com/>

