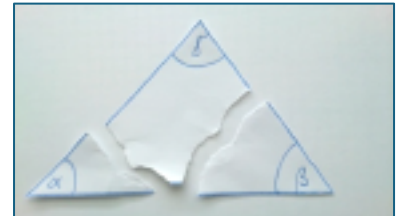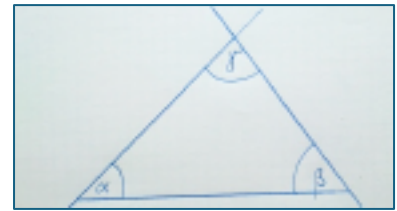# Triangle Sum Theorem

1. Draw a triangle on a sheet of paper and label the interior angles α, β, γ.

   Carefully cut out the triangle along the sides.

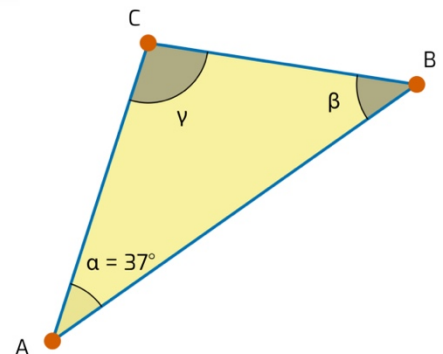   Tear off the three angles.

   Put the three pieces of paper together so that the vertices meet at one point.
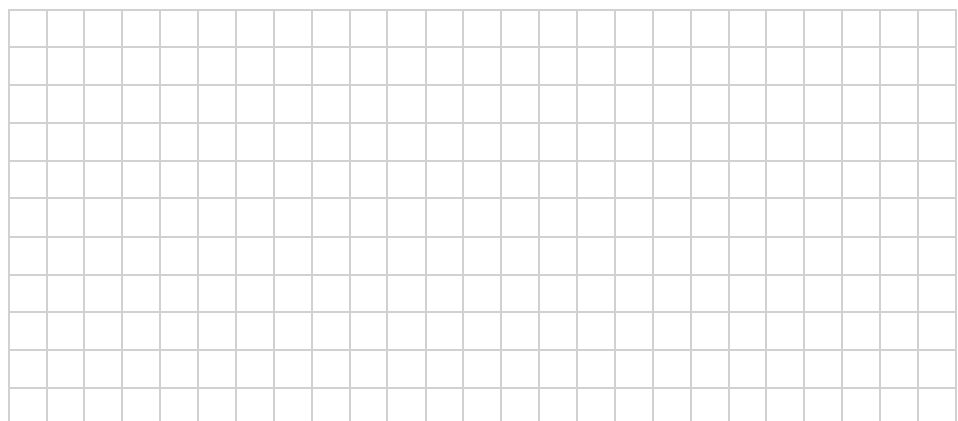
   What do you find?

2. In a triangle, the interior angle measures $\alpha = 37°$. Choose the other two angles so that the triangle is

   a) acute-angled, $\beta =$ _____ $\gamma =$ _____

   b) obtuse, $\beta =$ _____ $\gamma =$ _____

   c) right-angled, $\beta =$ _____ $\gamma =$ _____

   d) isosceles, $\beta =$ _____ $\gamma =$ _____

   e) equilateral. $\beta =$ _____ $\gamma =$ _____

3. Determine the sum of the angles in a

   ▶ quadrilateral

   ▶ pentagon,

   ▶ hexagon,

   ▶ n–gon.
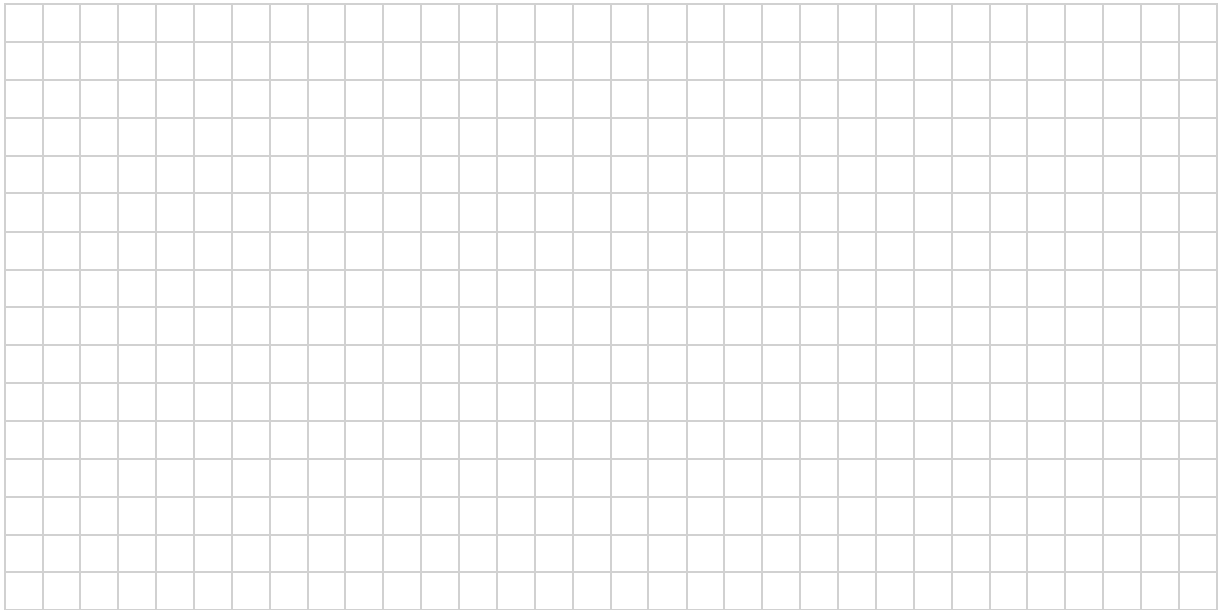
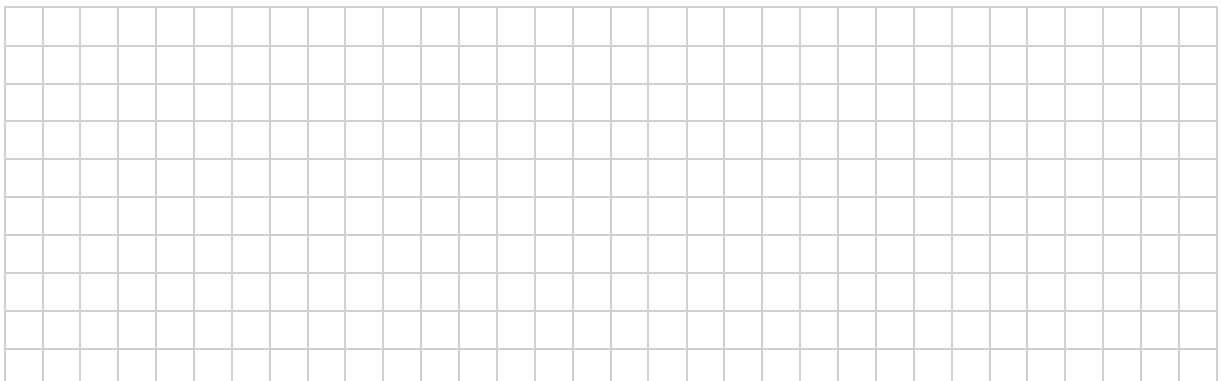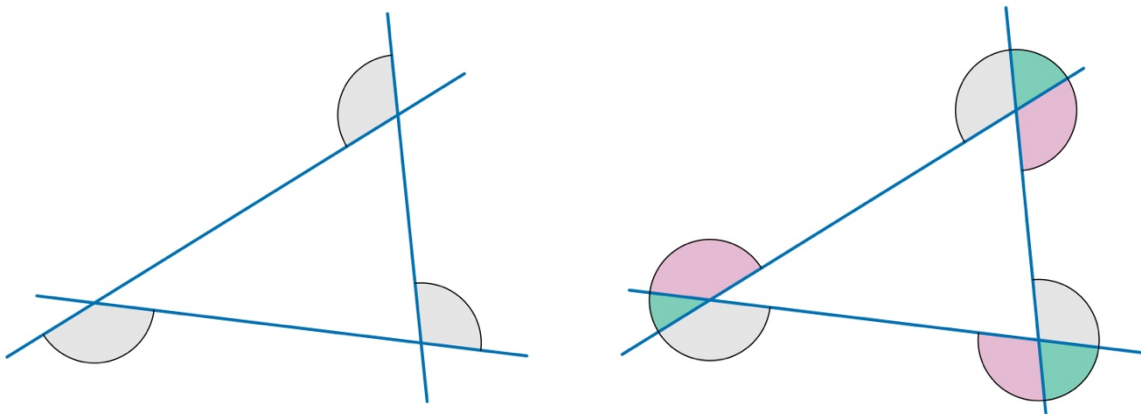   Explain your solution in each case (with a sketch).

4. Determine the measure of the interior angle in a

   ▶ regular pentagon,

   ▶ regular n–gon.

   Explain your solution.

5. Determine the sum of the sizes of the marked angles:

6. Determine the measure of the angle γ. The two angles δ and ε are equal.