Sum of the amplitudes of the exterior angles of a triangle

➢ How to calculate the sum of the exterior angles of a triangle?

What can you conclude about the amplitude of an exterior (or external) angle? Justify your answer.

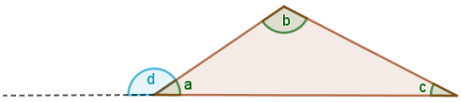

Figure 1

We know that the sum of the amplitudes of the interior (or internal) angles of a triangle is equal to 180º.

Angle d is an external angle, because the sum of the amplitudes of angles d and a is equal to 180º.

Thus, the amplitude of the external angle d is equal to the sum of the amplitudes of angles b and c.

What can you conclude about the sum of the amplitudes of the exterior angles, from 3 different vertices, of a triangle. Justify your answer.

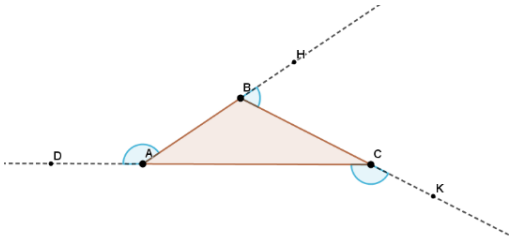

Figure 2

The sum of the amplitudes of the interior angles of a triangle is equal to 180º.

The sum of the amplitudes of the interior and exterior angles of 3 different vertices of a triangle is equal to 3 x 180º, or 540º.

Thus, the sum of the exterior angles is equal to the difference between 540º and 180º, that is, 360º.

To go further:

How do you calculate the sum of the amplitudes of the exterior angles of other polygons?