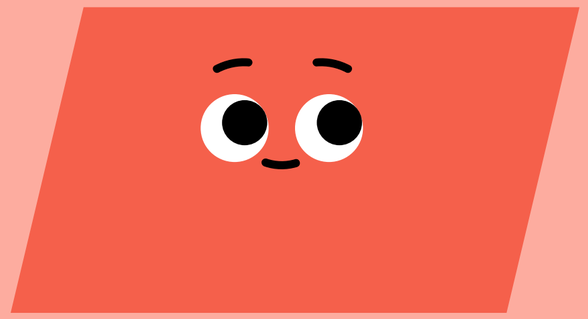
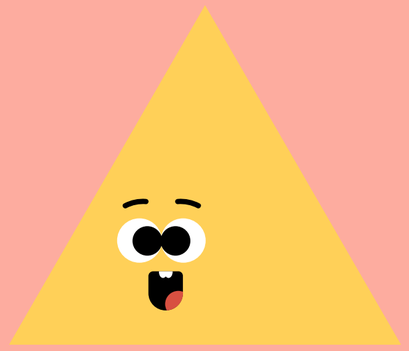
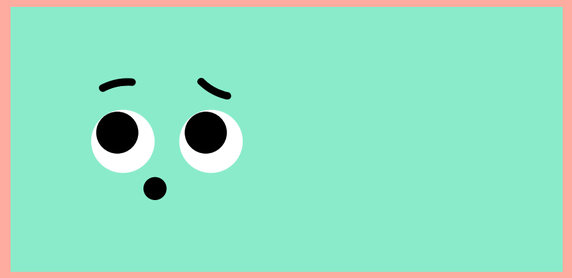
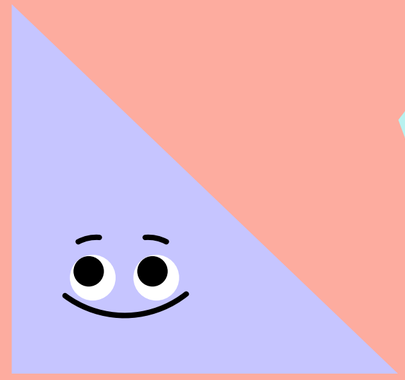
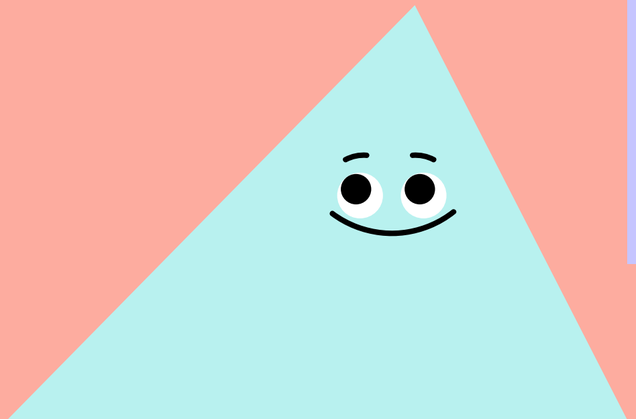
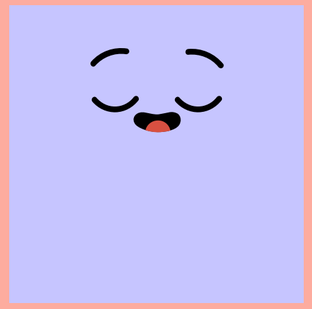
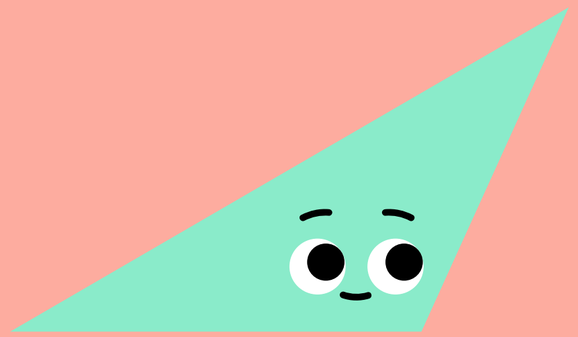
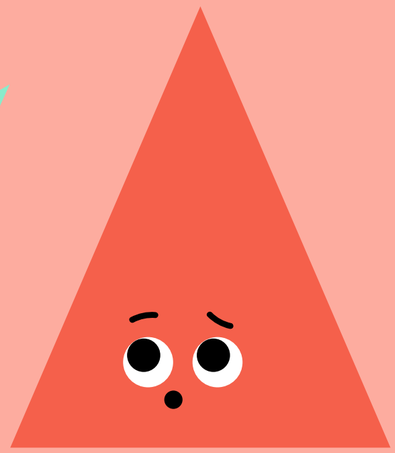
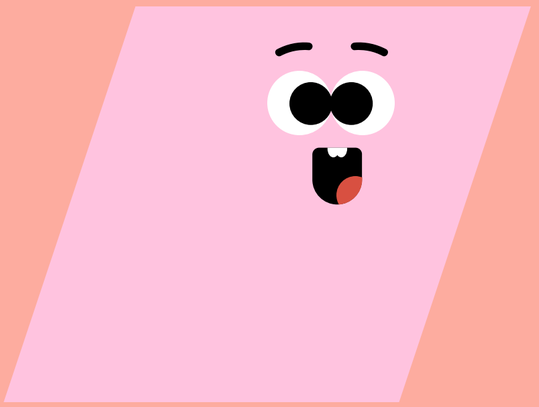
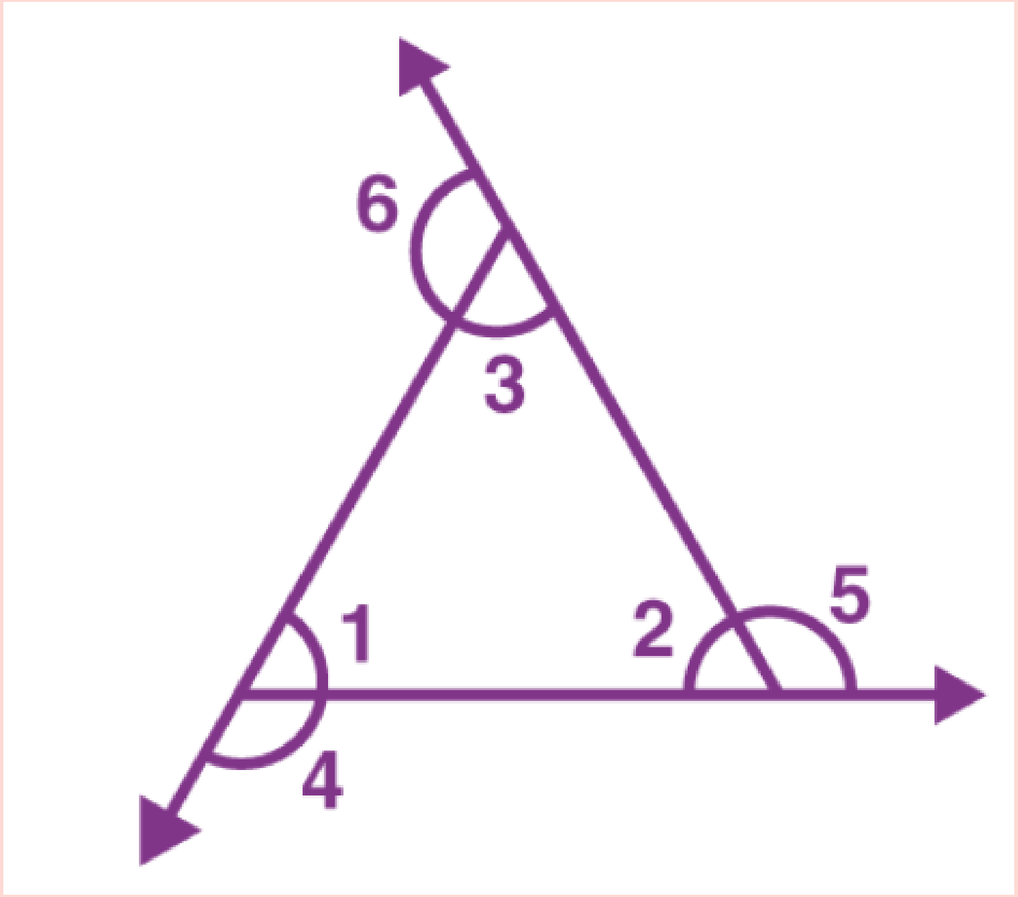






PROPERTIES OF SHAPES

PROPERTIES



- The sum of all three interior angles is equal to 180 degrees

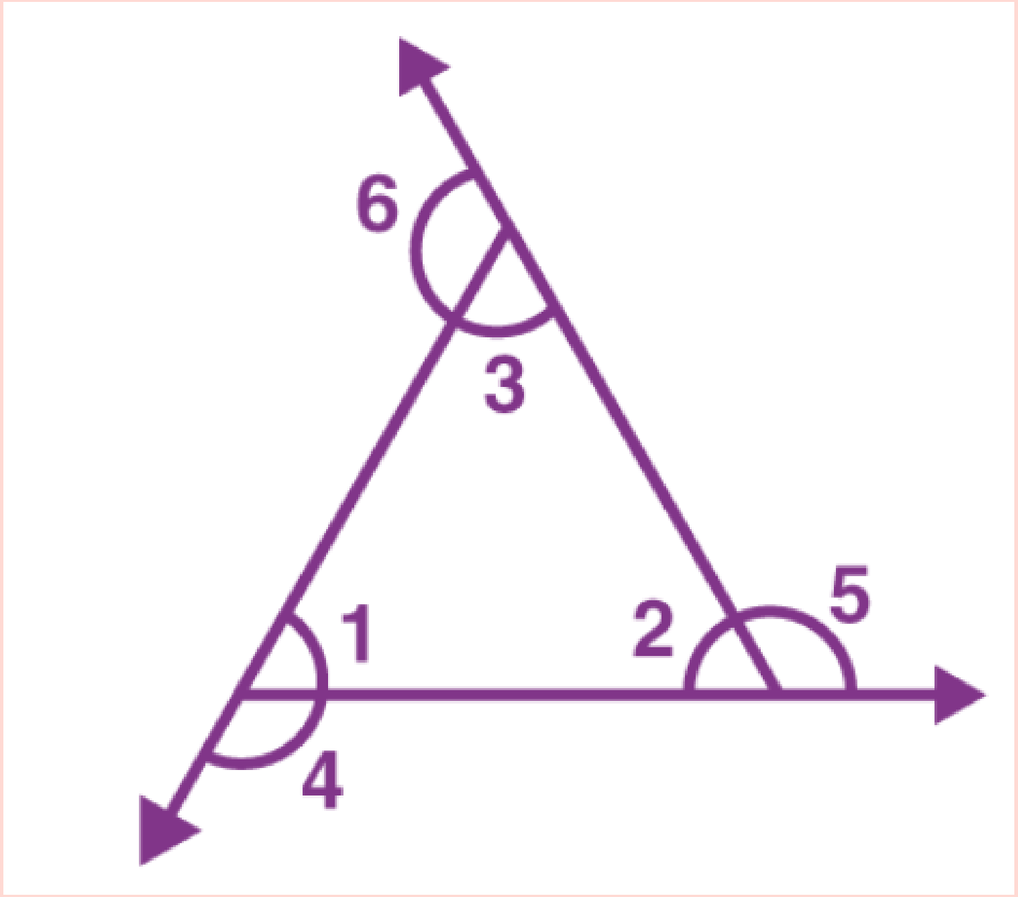
- If we extend the side length outwards, then it forms an exterior angle. The sum of consecutive interior and exterior angles of a triangle is supplementary

$\angle 1 + \angle 4 = 180°$

$\angle 2 + \angle 5 = 180°$

$\angle 3 + \angle 6 = 180°$

PROPERTIES



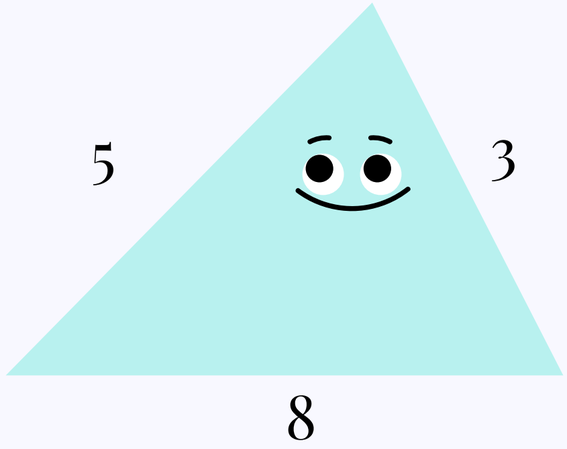
- The exterior angles of a triangle always add up to 360 degrees.

- The shortest side is always opposite the smallest interior angle. Similarly, the longest side is always opposite the largest interior angle.

CLASSIFYING TRIANGLES

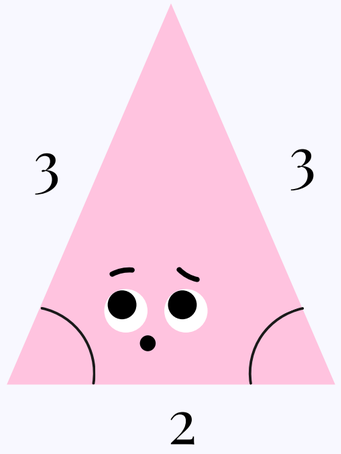
Measure of Sides

SCALENE



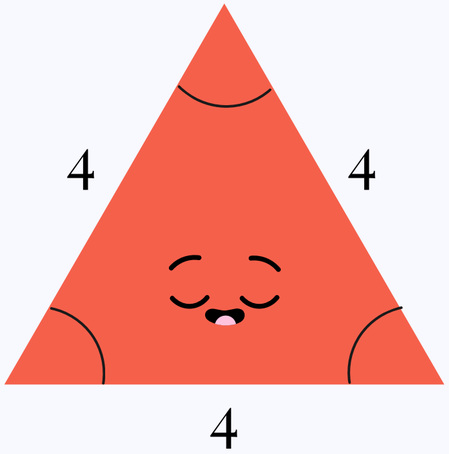
- no sides equal
- no angles equal

ISOSCELES



- at least two sides equal
- two angles opposite to the two equal sides are equal

EQUILATERAL

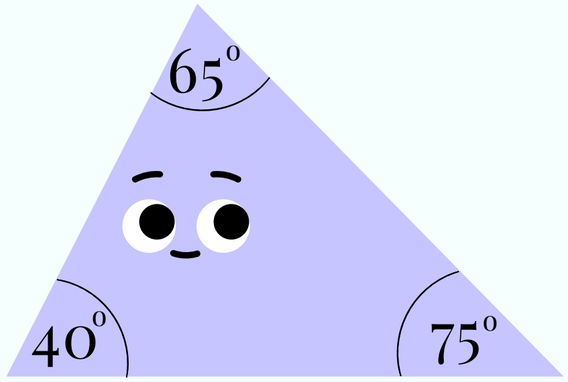


- all sides equal
- all interna angles are equal

CLASSIFYING TRIANGLES

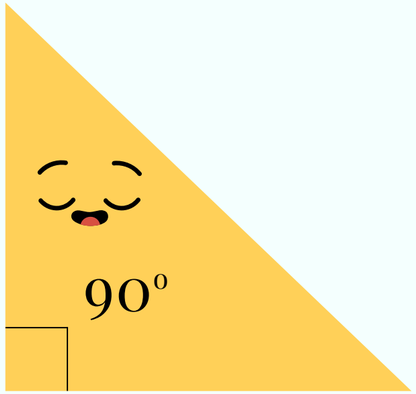
Measure of Angles:

ACUTE



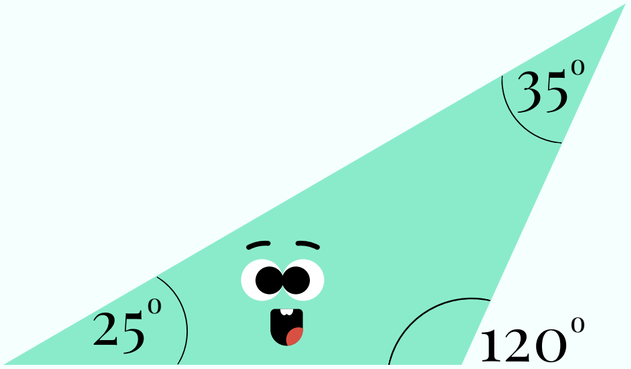
all angles less than 90°

RIGHT



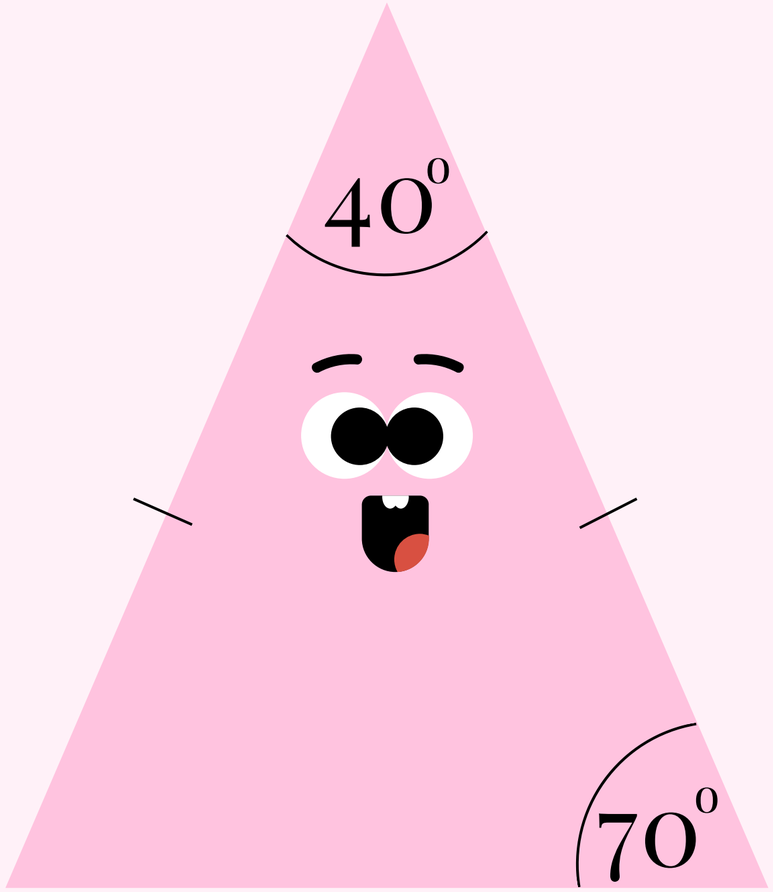
has one angle that is 90°

OBTUSE



has one angle greater than 90°

DEFINING TRIANGLES



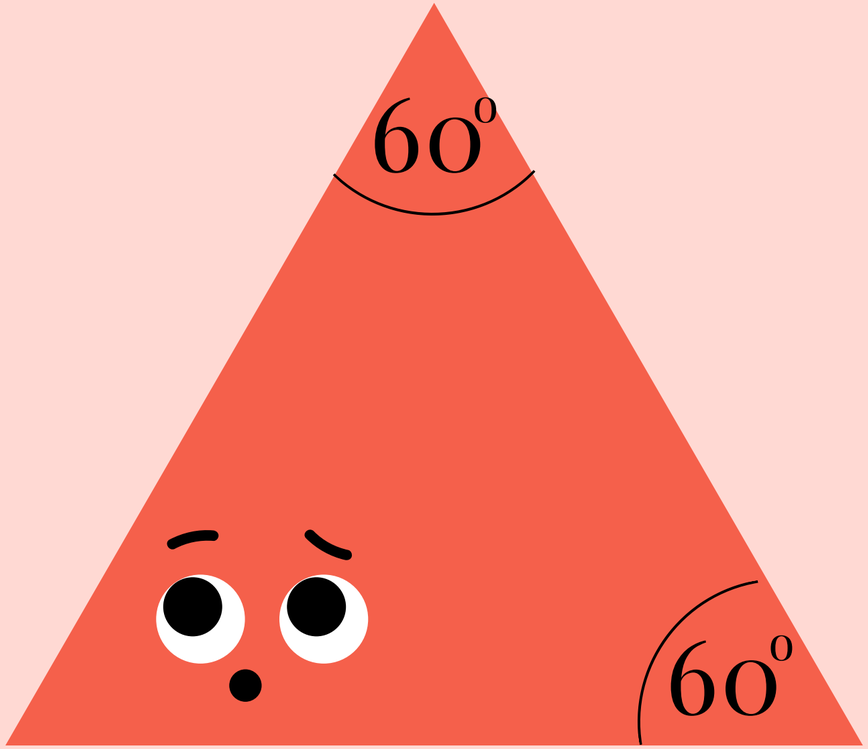
$$40 + 70 = 110$$

$$180 - 110 = 70$$

Therefore, two angles have the same measure. Because their angles are congruent, the opposite sides lengths are also the same.

This is an isosceles triangle.

DEFINING TRIANGLES



$$60 + 60 = 120$$

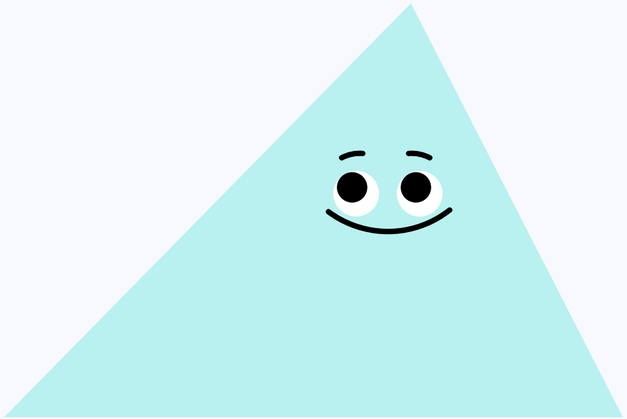
$$180 - 120 = 60$$

Because all of the angles are congruent, all of the sides are also congruent.

This is an equilateral triangle.

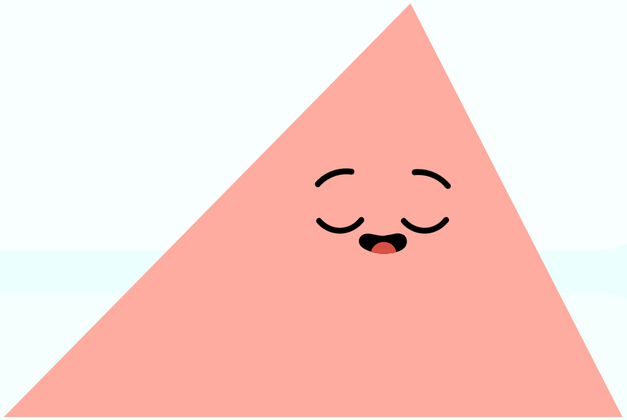
PERIMETER

Is defined as the total length of the outer boundary of the triangle. Or we can say, the perimeter of the triangle is equal to **the sum of all its three sides**.
The unit of the perimeter is same as the unit of sides of the triangle.

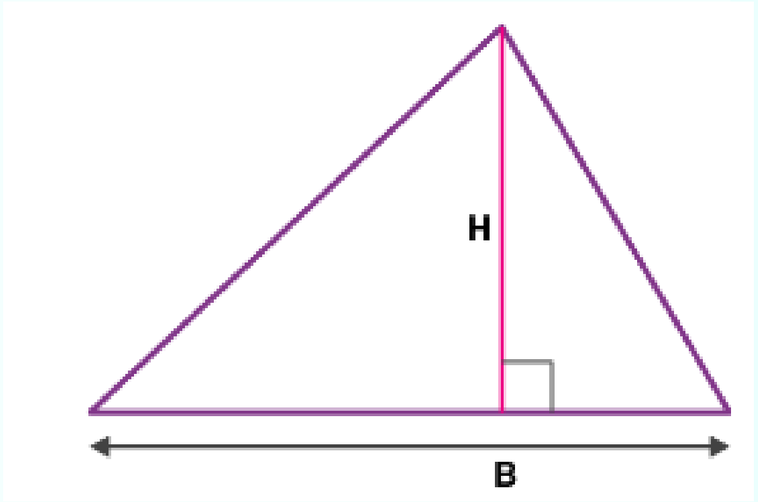


Perimeter = Sum of All Sides

AREA



The area of a triangle is the region occupied by the triangle in 2d space.
The area for different triangles varies from each other depending on their dimensions.



Area of triangle = Half of Product of Base and Height

Area = 1/2 × Base × Height