

MATHEMATICS



Topic: Geometry of 2D shapes.

Classifying 2D shapes

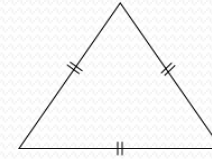
Properties of triangles

- ❖ A triangle is a three-sided shape. Every triangle has three sides and three angles.
- 1. The sum of the interior angles of a triangle is 180° .
- 2. The exterior angle of a triangle is equal to the sum of the two opposite interior angles.

There are some special types of triangles:

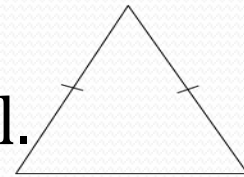
1. Equilateral triangle

- All three sides are equal in length
- All three angles are equal



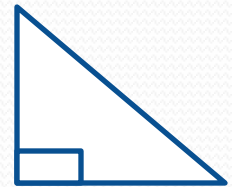
2. Isosceles triangle

- Two sides are equal in length
- The two angles at the base of these sides are equal.



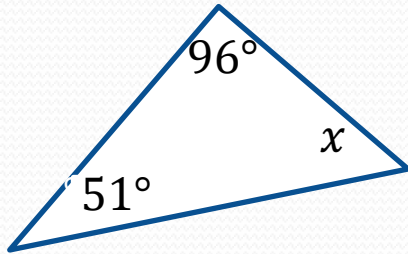
3. Right-angled triangle

- Has one right angle (angle 90°)
- The side opposite the right angle is called the hypotenuse.
- The square of the hypotenuse is equal to the sum of the squares of the other two sides.



Worked Examples

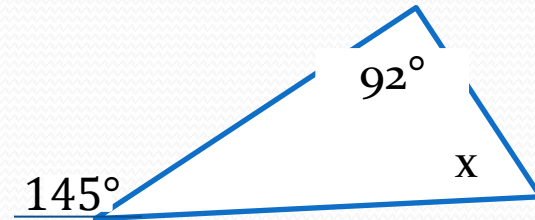
1. Find the size angle x .



Solution

$$\begin{aligned}x + 96^\circ + 51^\circ &= 180^\circ \text{(sum angles of triangle)} \\x &= 180^\circ - 96^\circ - 51^\circ \\&= 33^\circ\end{aligned}$$

2. Find the size of angle a :



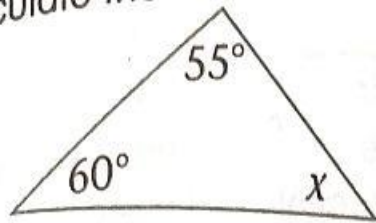
Solution

$$\begin{aligned}a + 92^\circ &= 145^\circ \text{(exterior angles of triangle)} \\a &= 145^\circ - 92^\circ \\a &= 53^\circ\end{aligned}$$

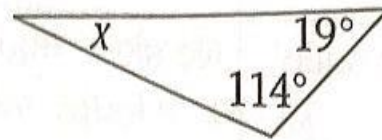
Exercise

1. Calculate the value of x in each of these triangles:

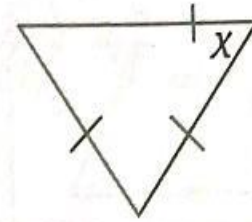
a)



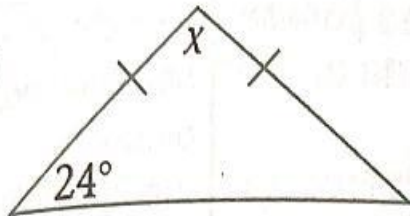
b)



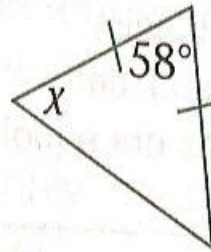
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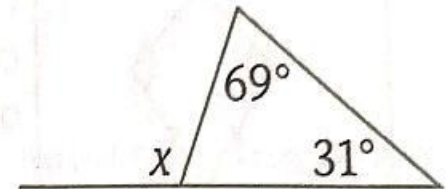
d)



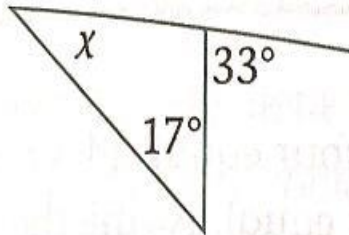
e)



f)



g)



h)

