Exercise 15A

Hence, the angles of the triangle are 36°, $(2 \times 36)^\circ$ and $(2 \times 36)^\circ$, i.e. 36°, 72° and 72°.

Q9

Answer :

Suppose the angles are $\angle A$, $\angle B$ and $\angle C$. (Sum of the angles of a triangle is 180°)

Given :

$\angle A = \angle B + \angle C$

$Also, \angle A + \angle B + \angle C = 180^\circ$

$\therefore \angle A + \angle A = 180^\circ$

$\Rightarrow 2\angle A = 180^\circ$

$\Rightarrow \angle A = 90^\circ$

Hence, the triangle ABC is right angled at ∠A.

Q10

Answer :

Suppose: $2\angle A = 3\angle B = 6\angle C = x^\circ$

Then, $\angle A = \left(\frac{x}{2}\right)^\circ$

$\angle B = \left(\frac{x}{3}\right)^\circ$ and $\angle C = \left(\frac{x}{6}\right)$

Sum of the angles of any triangle is 180°.

$\angle A + \angle B + \angle C = 180^\circ$

$\Rightarrow \frac{x}{2} + \frac{x}{3} + \frac{x}{6} = 180^\circ$

$\Rightarrow \frac{3x+2x+x}{6} = 180^\circ$

$\Rightarrow \frac{6x}{6} = 180^\circ$

$\Rightarrow x = 180$

$\therefore \angle A = \left(\frac{180}{2}\right)^\circ = 90^\circ$

$\angle B = \left(\frac{180}{3}\right)^\circ = 60^\circ$

$\angle C = \left(\frac{180}{6}\right)^\circ = 30^\circ$

Q11

Answer :

We know that the angles of an equilateral triangle are equal.
Let the measure of each angle of an equilateral triangle be x°.

$\therefore x + x + x = 180$
$x = 60$
Hence, the measure of each angle of an equilateral triangle is 60°.

Q12

Answer :

(i)
$DE \parallel BC$
$\therefore \angle ABC = \angle ADE = 55^\circ$

(Corresponding angles)

(ii) Sum of the angles of any triangle is 180°.

$\therefore \angle A + \angle B + \angle C = 180^\circ$
$\angle C = 180^\circ - (65^\circ + 55^\circ) = 60^\circ$

DE || BC
$\therefore \angle AED = \angle ACB = 60^\circ$ (corresponding angles)

(iii) We have found in point (ii) that $\angle C$ **is equal to** 60°.

Q13

Answer :

(i) No. This is because the sum of all the angles is 180°.
(ii) No. This is because a triangle can only have one obtuse angle.
(iii) Yes
(iv) No. This is because the sum of the angles cannot be more than 180°.
(v) No. This is because one angle has to be more than 60° as the sum of all angles is always 180°.
(vi) Yes, it will be an equilateral triangle.

Q14

Answer :

(i) Yes, it will be an isosceles right triangle.

(ii) Yes, a right triangle can have all sides of different measures. For example, 3, 4 and 5 are the sides of a scalene right triangle.

(iii) No, it cannot be an equilateral triangle since the hypotenuse square will be the sum of the square of the other two sides.

(iii) Yes, if an obtuse triangle has an obtuse angle of 120° and the other two angles of 30° each, then it will be an isosceles triangle.

Q15

Answer :

(i) obtuse (since the sum of the other two angles of the right triangle is 90°)
(ii) equal to the sum of 90°
(iii) 45° (since their sum is equal to 90°)
(iv) 60°
(v) a hypotenuse
(vi) perimeter

********** END **********