



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 :

$$\begin{aligned}\angle A &= \angle B + \angle C \\ \text{Also, } \angle A + \angle B + \angle C &= 180^\circ \\ \therefore \angle A + \angle A &= 180^\circ \\ \Rightarrow 2\angle A &= 180^\circ \\ \Rightarrow \angle A &= 90^\circ\end{aligned}$$

Hence, the triangle ABC is right angled at $\angle A$.

Q10

Answer :

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

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

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

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° .

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

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

$$DE \parallel BC$$

$$\therefore \angle AED = \angle ACB = 60^\circ \quad (\text{corresponding angles})$$

(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 *****

