

Mathematics

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(Chapter – 6) (Lines and Angles)(Exemplar Problems)

(Class – IX)

Exercise 6.1

Write the correct answer in each of the following:

Question 4:

The angles of a triangle are in the ratio 5: 3: 7. The triangle is

- (A) an acute angled triangle (B) an obtuse angled triangle
(C) a right triangle (D) an isosceles triangle

Answer 4:

- (A) an acute angled triangle

Solution:

Given that:

The ratio of angles of a triangle is 5:3:7.

Let angles of a triangle be $\angle A$, $\angle B$ and $\angle C$.

Let $\angle A = 5x$, then $\angle B = 3x$ and $\angle C = 7x$

In $\triangle ABC$, $\angle A + \angle B + \angle C = 180^\circ$

[Sum of angles of a triangle is 180°]

$$\begin{aligned}\therefore & 5x + 3x + 7x = 180^\circ \\ \Rightarrow & 15x = 180^\circ \\ \Rightarrow & x = \frac{180^\circ}{15} = 12^\circ\end{aligned}$$

$$\begin{aligned}\therefore & \angle A = 5x = 5 \times 12^\circ = 60^\circ \\ & \angle B = 3x = 3 \times 12^\circ = 36^\circ \\ \text{and} & \angle C = 7x = 7 \times 12^\circ = 84^\circ\end{aligned}$$

Since, all angles are less than 90° , the triangle is an acute angled triangle.

Hence, the option (A) is correct.

