1. In $\triangle ABC$, $AB = AC$ and $\angle B = 62^\circ$. Which is longer, $AB$ or $BC$?

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{fig1}
\caption{fig. 1}
\end{figure}

2. The sides $CA$, $CB$ of $\triangle ABC$ are produced to $H$, $K$; the bisectors of $\angle ABC$, $\angle ACB$ meet at $I$; $\angle BAH = 126^\circ$, $\angle ABK = 118^\circ$. Which is the longer, $IB$ or $IC$?

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{fig2}
\caption{fig. 2}
\end{figure}

3. In fig. 3, $ABCD$ is a straight line; $BQ$, $CQ$ are the bisectors of $\angle PBD$, $\angle PCD$. Which is the longer,
   (a) $PB$ or $PC$,
   (b) $BC$ or $QC$?

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{fig3}
\caption{fig. 3}
\end{figure}

4. In fig. 4, $ABCD$ is a straight line. $\angle PCD$. Which is the longer,
   (a) $RB$ or $RC$,
   (b) $PB$ or $PR$?

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{fig4}
\caption{fig. 4}
\end{figure}
5. In \( \triangle ABC \), \( \angle A = 60^\circ \), \( \angle B = 58^\circ \); AB, AC are produced to H, K; PB, PC are the bisectors of \( \angle HBC \), \( \angle KCB \). Which is longer,

(a) AB or AC,

(b) PB or PC?

6. In \( \triangle ABC \), \( \angle A = 30^\circ \), \( \angle B = 56^\circ \); the bisector of \( \angle BAC \) cuts BC at X. Arrange in order of length, the shortest first, AX, BX, CX.

7. P is a point between B and C on the side BC of \( \triangle ABC \), such that PA=PC; \( \angle C = 58^\circ \), \( \angle PAB = 33^\circ \). Which is the longer, PB or PC?

8. P is a point between B and C on the side BC of the equilateral triangle ABC. Arrange in order of length, the shortest first, the sides of \( \triangle ABP \).
9. Is it possible to draw a triangle whose sides are of lengths
   (a) 2.5 cm., 3.5 cm., 6.5 cm.;
   (b) 2 m., 3 m., 4 m.;
   (c) 1 cm., 2 cm., 3 cm.?

10. How many unequal triangles can be drawn such that the lengths of two sides are 4 cm.,
    7 cm., and such that the length of the third side is a whole number of centimeter?

11. ABCD is a convex quadrilateral in which AB = 7 cm., BC = 2 cm., CD = 3 cm., DA =
    4 cm.
    (a) Between what limits must the length of AC lie?
    (b) Prove that \( \angle DCB > \angle DBC \) and that \( \angle ADB > \angle DAB \).
12. ABCD is a trapezium in which AB, DC are the parallel sides; AC cuts BD at K. If \( \angle CAB = 41^\circ \) and \( \angle AKB = 100^\circ \), find which is the greater, AC or BD.

13. In fig. 13, RQ is parallel to BC. Prove that
   (a) \( AR > PR > QC \);
   (b) \( BP > PQ \).

14. In \( \triangle ABC \), \( \angle B = 90^\circ \), \( \angle C = 29^\circ \); prove that \( AB < \frac{1}{2} AC \).