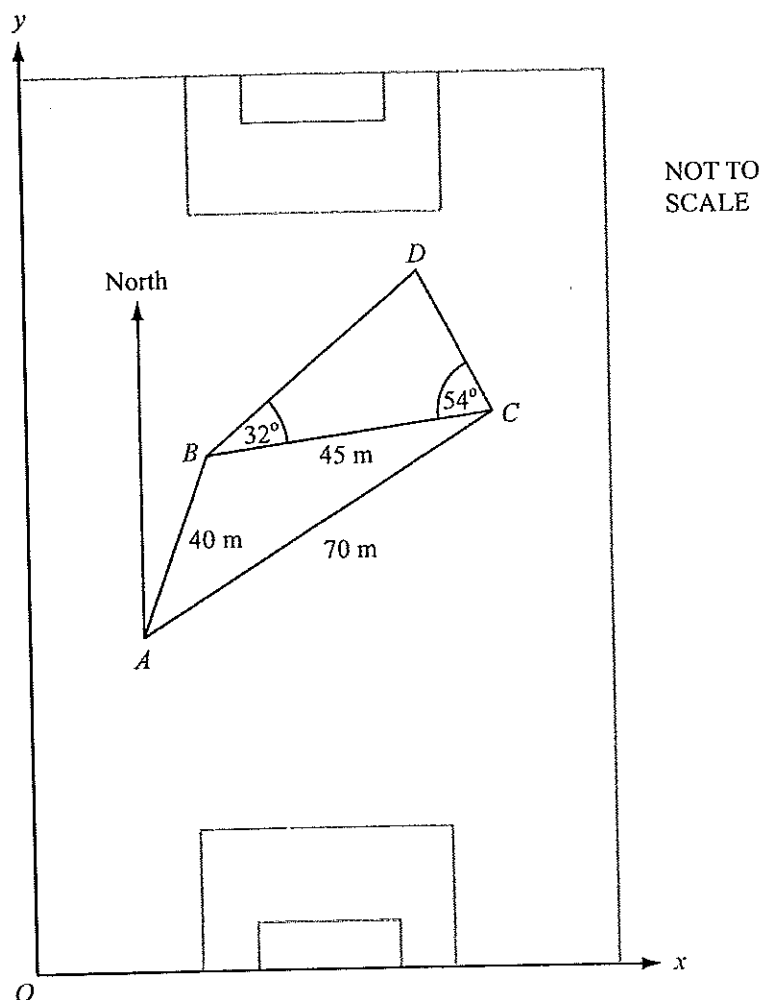# IGCSE – Sine/Cosine Rule/Bearings/Area – 5

4

5



NOT TO SCALE

**(a)** During a soccer match a player runs from $A$ to $B$ and then from $B$ to $C$ as shown in the diagram.
$AB = 40\,m$, $BC = 45\,m$ and $AC = 70\,m$.

    **(i)** Show by calculation that angle $BAC = 37°$, correct to the nearest degree.     [3]

    **(ii)** The bearing of $C$ from $A$ is $051°$. Find the bearing of $B$ from $A$.     [1]

    **(iii)** Calculate the area of triangle $ABC$.     [3]

**(b)** $x$- and $y$-axes are shown in the diagram.

    $\vec{AC} = \begin{pmatrix} p \\ q \end{pmatrix}$, where $p$ and $q$ are measured in metres.

    **(i)** Show that $p = 54.4$.     [2]

    **(ii)** Find the value of $q$.     [2]

**(c)** Another player is standing at $D$.
$BC = 45$ m, angle $BCD = 54°$ and angle $DBC = 32°$.
Calculate the length of $BD$.     [4]