5 Two points have coordinates $A\,(5,\,7)$ and $B\,(9,\,-1)$.

   (i) Find the equation of the perpendicular bisector of AB. [3]

The line through $C\,(1,\,2)$ parallel to AB meets the perpendicular bisector of AB at the point X.

   (ii) Find, by calculation, the distance BX. [5]