

**10** The equation of a curve is  $y = 2x + \frac{12}{x}$  and the equation of a line is  $y + x = k$ , where  $k$  is a constant.

**(i)** Find the set of values of  $k$  for which the line does not meet the curve. [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

In the case where  $k = 15$ , the curve intersects the line at points  $A$  and  $B$ .

**(ii)** Find the coordinates of  $A$  and  $B$ . [3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

[illegible]

(iii) Find the equation of the perpendicular bisector of the line joining  $A$  and  $B$ . [3]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.