8 The points A and B have coordinates $(4, 8)$ and $(6, p)$ respectively, where p is a positive constant and $p \neq 8$.

(a) Find, in terms of p, the coordinates of the midpoint of AB. [1]

(b) Find, in terms of p, the gradient of the line AB. [1]

The perpendicular bisector of AB intersects the positive x-axis at the point where $x = \frac{7}{5}p$.

(c) Determine the x-coordinate of this point of intersection. [5]