2 Relative to a fixed origin O, the point A has position vector $6\mathbf{i} + 5\mathbf{j}$ and the point B has position vector $3\mathbf{i} + 9\mathbf{j}$

   (a) Find $\overrightarrow{AB}$ as a simplified vector in terms of $\mathbf{i}$ and $\mathbf{j}$

   (2)

   The line PQ is parallel to AB. Given that $\overrightarrow{PQ} = 12\mathbf{i} + \lambda\mathbf{j}$

   (b) find the value of λ.

   (2)

   (c) Find a unit vector parallel to AB.

   (2)

Question 2 continued

(Total for Question 2 is 6 marks)