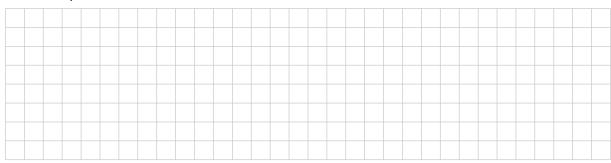
Question 3 (25 marks)

(a) The co-ordinates of two points are A(4, -1) and B(7, t).

The line  $l_1: 3x-4y-12=0$  is perpendicular to AB. Find the value of t.



**(b)** Find, in terms of k, the distance between the point P(10, k) and  $l_1$ .



(c) P(10, k) is on a bisector of the angles between the lines  $l_1$  and  $l_2: 5x + 12y - 20 = 0$ .

(i) Find the possible values of k.



(ii) If k > 0, find the distance from P to  $l_1$ .