

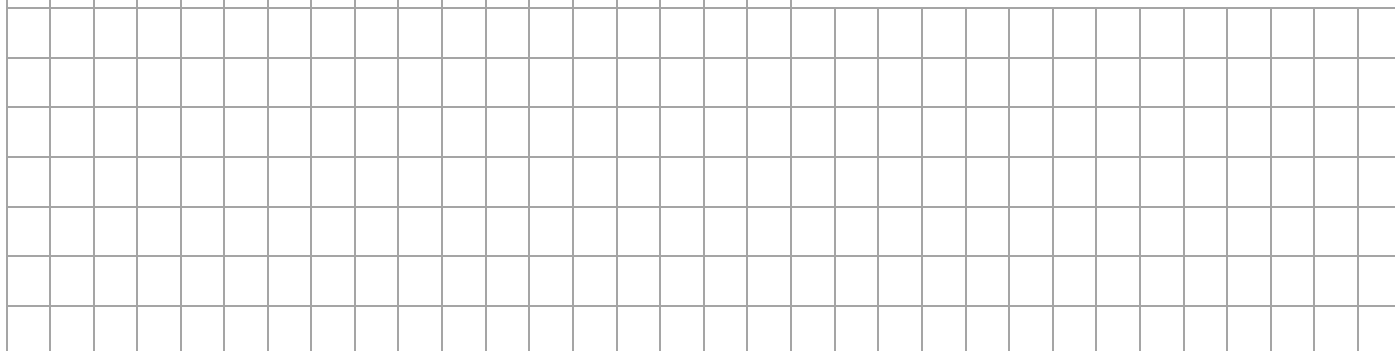
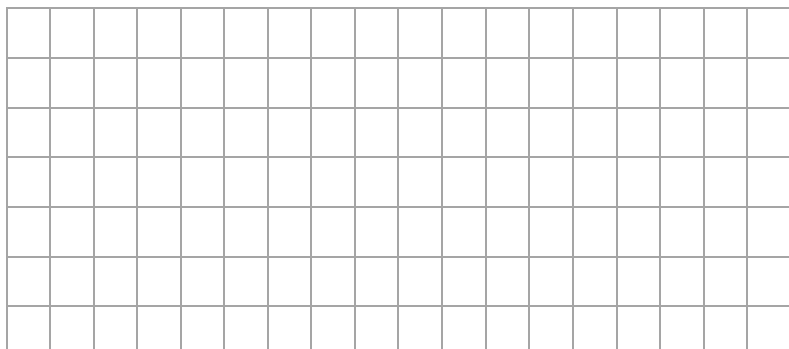
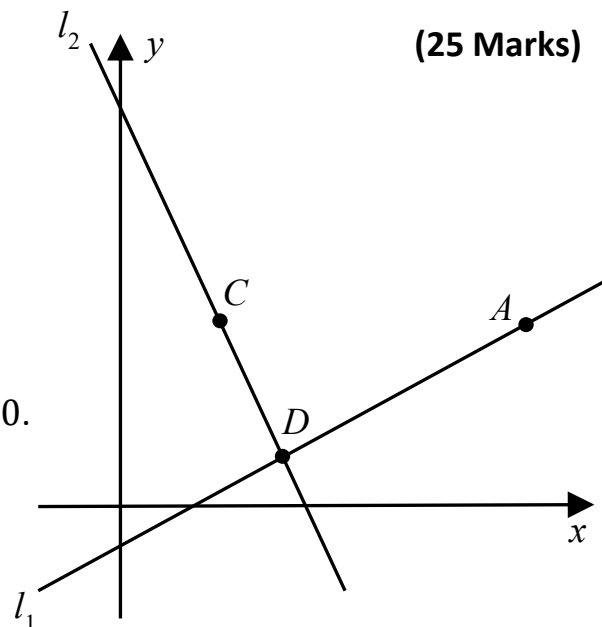
(25 Marks)

The line l_1 has equation $4y + 3 = 2x$.

The point $A(9.5, 4)$ lies on l_1 .

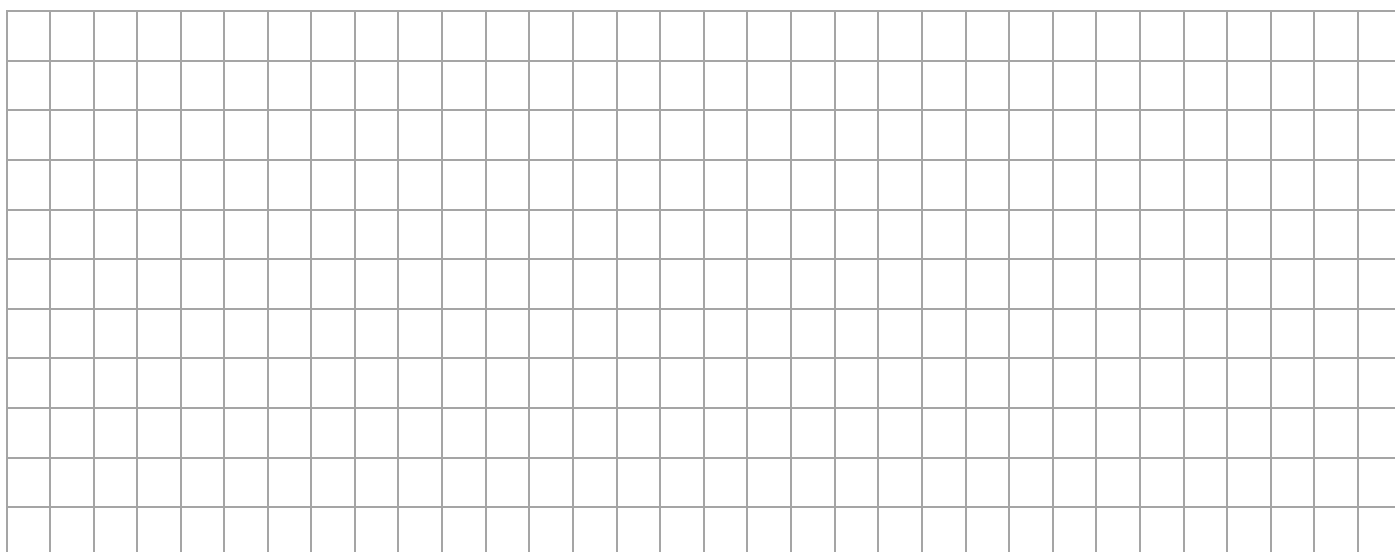
The line l_2 passes through the point $C(2, 4)$ and is perpendicular to l_1 .

(a) Show that the equation for l_2 is $2x + y - 8 = 0$.

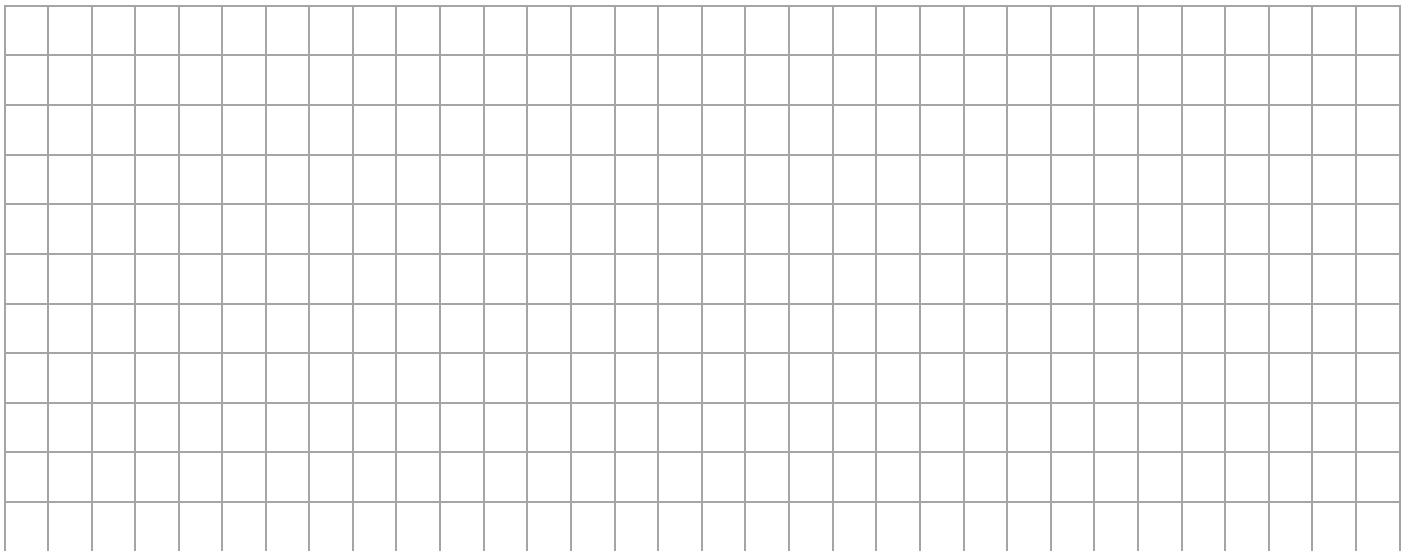


The line l_1 and the line l_2 intersect at the point D .

(b) Find the coordinates of the point D .



(c) Show that the length of CD is $\frac{3}{2}\sqrt{5}$.



A point B lies on l_1 and the length of $AB = \sqrt{80}$.

The point E lies on l_2 such that the length of the line $CDE = 3$ times the length of CD .

(d) Find the area of the quadrilateral $ACBE$.

