Air maths tuition

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Intersection of a line | Past Paper Question | C1 Edexcel June 2013 Q6

The straight line L_1 passes through the points $(-1, 3)$ and $(11, 12)$.

(a) Find an equation for L_1 in the form $ax + by + c = 0$, where a, b and c are integers. **(4)**

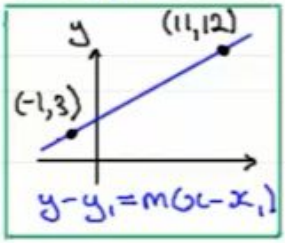
The line L_2 has equation $3y + 4x - 30 = 0$.

(b) Find the coordinates of the point of intersection of L_1 and L_2. **(3)**

(a) gradient $L_1 = \frac{12-3}{11-(-1)}$

$= \frac{9}{12}$

$= \frac{3}{4}$



$\therefore$ Equation L_1 is: $y - 3 = \frac{3}{4}(x - -1)$

$\therefore 4y - 12 = 3x + 3$

$\therefore 3x - 4y + 15 = 0$

(b) L_1: $3x - 4y + 15 = 0$ ①

L_2: $3y + 4x - 30 = 0$ ②

① × 3 $9x - 12y + 45 = 0$ ③

② × 4 $12y + 16x - 120 = 0$ ④

③ + ④ $25x - 75 = 0 \Rightarrow x = 3$

Sub in ① $3(3) - 4y + 15 = 0$

$\therefore 4y = 24 \Rightarrow y = 6$

$\therefore$ lines intersect at $(3, 6)$

With the acknowledgement of Exam Solutions.

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