Advanced Higher Maths
SQA 2016 Specimen
Question 14

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The lines L_1 and L_2 are given by the following equations.

L_1: $\dfrac{x+6}{3}=\dfrac{y-1}{-1}=\dfrac{z-2}{2}$

L_2: $\dfrac{x+5}{4}=\dfrac{y+4}{1}=\dfrac{z}{4}$

(a) Show that the lines L_1 and L_2 intersect and state the coordinates of the point of intersection. **5**

(b) Find the equation of the plane containing L_1 and L_2. **3**

A third line, L_3, is given by the equation $\dfrac{x-1}{2}=\dfrac{y+7}{4}=\dfrac{z-3}{-1}$.

(c) Calculate the acute angle between L_3 and the plane. Give your answer in degrees correct to 2 decimal places. **4**

Answers:

(a) (3, −2, 8)

(b) $-6x-4y+7z=46$

(c) 49·46°