

A-Level Mathematics: AS - Straight Line Graphs

Priority Learning

Worksheet

Name: _____ Date: _____

Question:	1	2	3	4	Total
Marks:	15	8	6	10	39
Score:					

Aims of this worksheet:

- Be able to write the equation from a point and its gradient,
- To be able to find the gradient between two points,
- Understand how to find the midpoint of two points.

1. A straight line l_1 passed through the points $A(4, 8)$ and $B(-8, 11)$.

(a) Find the equation for the line l_1 , give your answer in the form $ax + by + c = 0$ (4 marks)

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(b) The line l_2 passes through the point $C(2, 42.5)$ and is perpendicular to l_1 . Find the point D at which the two lines intercept . (5 marks)

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(c) Find the area of the triangle ABD

(6 marks)

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2. The straight line l_1 has equation $5y - 14x + 42 = 0$

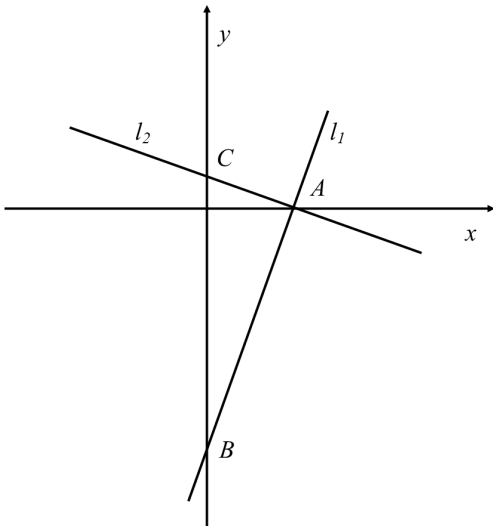


Figure 1:

(a) Find the gradient of l_1

(1 mark)

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The line l_1 crosses the x -axis at the point A and the y -axis at the point B , as shown in Figure 1. Line l_2 is perpendicular to l_1 and passes through A .

- (b) Find the equation for l_2 . Give your equation in the form $ax + by + c = 0$ (3 marks)

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The line l_2 crosses the y -axis at the point C .

- (c) Find the area of triangle ABC , give your answer to 3 decimal places. (4 marks)

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3. A line passes through the points $A(2, 5)$, $B(-16, 7k)$ and $C(15, -4)$, where k is a constant. Given that the line AC is perpendicular to AB , find the area of the triangle ABC . (6 marks)

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4. (a) Find the equation of the line l_1 that passes through the points $A(-4, 7)$ and $B(8, -11)$. Give your answer in the form $ax + by + c = 0$. (3 marks)

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(b) Find the points at which it crosses the x and y -axis. (2 marks)

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(c) Given a line l_2 passes through the point $C(5, -2)$ and has the gradient $-\frac{2}{13}$, find the equation of l_2 . (2 marks)

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(d) Find the point in which l_1 and l_2 intercept. Give your answer in its simplest form. (3 marks)

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