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# MATHEMATICS

## AS LEVEL QUESTION COMPILATION

# CM

Questions on: Coordinate Geometry of a Straight Line

**Instructions to candidates:**

• In the boxes above, write your centre number, candidate number, your surname, other names and signature.

• Answer ALL of the questions.

• You must write your answer for each question in the spaces provided.

• You may use a calculator.

**Information to candidates:**

• Full marks may only be obtained for answers to ALL of the questions.

• The marks for individual questions and parts of the questions are shown in round brackets.

• There are 5 questions in this question paper. The total mark for this paper is 37.

**Advice to candidates:**

• You should ensure your answers to parts of the question are clearly labelled.

• You should show sufficient working to make your workings clear to the Examiner.

• Answers without working may not gain full credit.



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**1** A straight line $l$ passes through the points $A(5, 4)$ and $B(-2, 11)$.

(a) Find the equation of the line $l$, giving your answer in the form $y = mx + c$. **(3)**

The line $l$ crosses the coordinate axes at the points $P$ and $Q$.

(b) Find the area of the triangle $OPQ$, where $O$ is the origin. **(3)**

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**Question 1 continued**

**TOTAL 6 MARKS**

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**2** The line $l_1$ passes through the points (2, 8) and (0, 3).

The line $l_2$ is parallel to the line with equation $2x + 5y - 3 = 0$.

Showing your working clearly, determine whether the lines $l_1$ and $l_2$ are parallel, perpendicular or neither. **(5)**

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**Question 2 continued**

**TOTAL 5 MARKS**

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**3** The line $l$ is perpendicular to $5x - 3y = 1$ and passes through the point $(5, 3)$.

The points $A$ and $B$ are where $l$ meets the coordinate axes.

Find the exact length of the line segment $AB$. **(5)**

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**Question 3 continued**

**TOTAL 5 MARKS**

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**4** The line $l_1$ has gradient 3 and passes through the points $(-2, -3)$ and $(1, p)$, where $p$ is a constant.

(a) (i) Find the value of $p$. **(2)**

(ii) Find the equation of $l$, giving your answer in the form $ax + by + c = 0$, where $a$, $b$ and $c$ are integers. **(2)**

The line $l_2$ has gradient $-1$ and passes through the origin $O$. The lines $l_1$ and $l_2$ intersect at the point $P$.

(b) Find the coordinates of the point $P$. **(4)**

The point $D$ is where $l_1$ crosses the $y$ axis.

(c) Find the area of the triangle $OPD$, where $O$ is the origin. **(3)**

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**Question 4 continued**

**TOTAL 11 MARKS**

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**5**

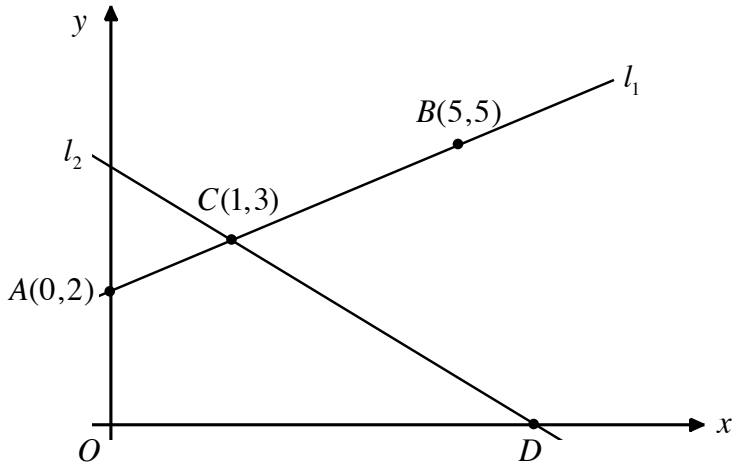


**Figure 1**

The line $l_1$ passes through the points $A(0, 2)$ and $B(5, 5)$.

(a) Find the equation of the line $l_1$, giving your answer in the form $y = mx + c$. **(3)**

The line $l_2$ is perpendicular to $l_1$ and intersects the line $l_1$ at the point $C(1, 3)$.

The line $l_2$ crosses the $x$ axis at the point $D$, as shown in Figure 2 above.

(b) Determine the coordiantes of the point $D$. **(4)**

(c) Find the area of the quadrilateral $OACD$, where $O$ is the origin. **(3)**

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**Question 5 continued**

**TOTAL 10 MARKS**