EXAM PAPERS PRACTICE

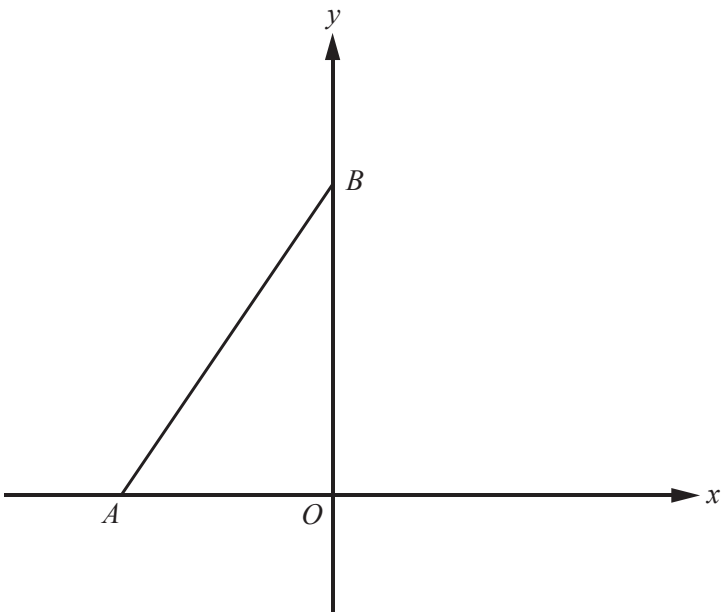
# Co-ordinate Geometry

Question Paper

## Question 1

A line has gradient 5.
$M$ and $N$ are two points on this line.
$M$ is the point $(x, 8)$ and $N$ is the point $(k, 23)$.

Find an expression for $x$ in terms of $k$. [3]

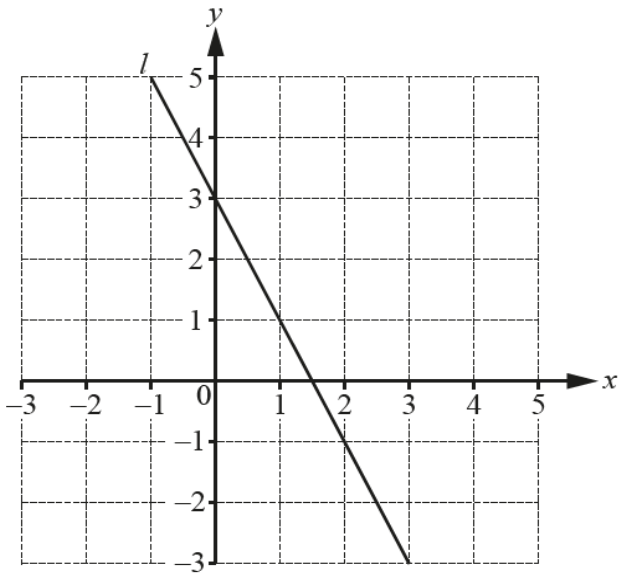



NOT TO SCALE

$A$ is the point $(-2,\ 0)$ and $B$ is the point $(0, 4)$.

**(a)** Find the equation of the straight line joining $A$ and $B$. [3]

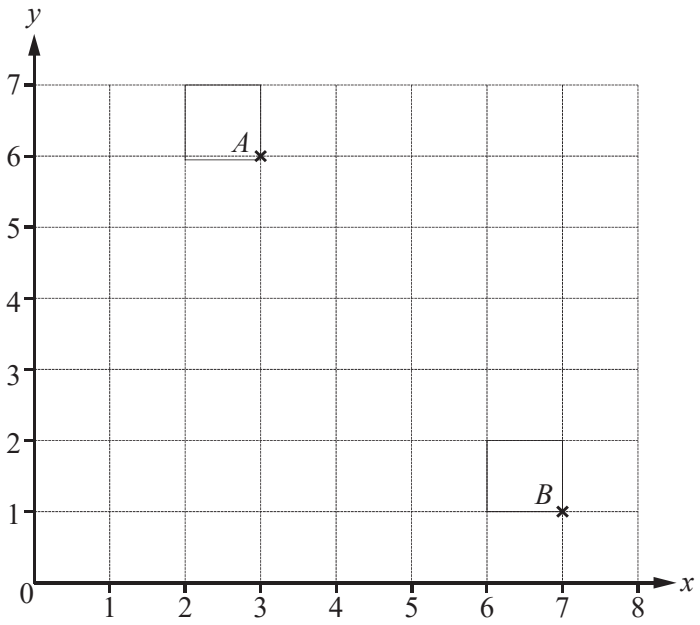
**(b)** Find the equation of the perpendicular bisector of $AB$. [4]




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

**(b)** A line perpendicular to the line $l$ passes through the point $(3, -1)$.

Find the equation of this line. [3]




Point $A$ has co-ordinates (3, 6).

**(a)** Write down the co-ordinates of point $B$. [1]

**(b)** Find the gradient of the line $AB$.

[2]

(c) Find the equation of the line that

- is perpendicular to the line $AB$

and

- passes through the point (0, 2).

[3]

## Question 5



$A$ is the point (8, 3) and $B$ is the point (12, 1).

Find the equation of the line, perpendicular to the line $AB$, which passes through the point (0, 0).

[3]

## Question 6



$A$ is the point (4, 1) and $B$ is the point (10, 15).

Find the equation of the perpendicular bisector of the line $AB$. [6]

## Question 7

Find the equation of the line that

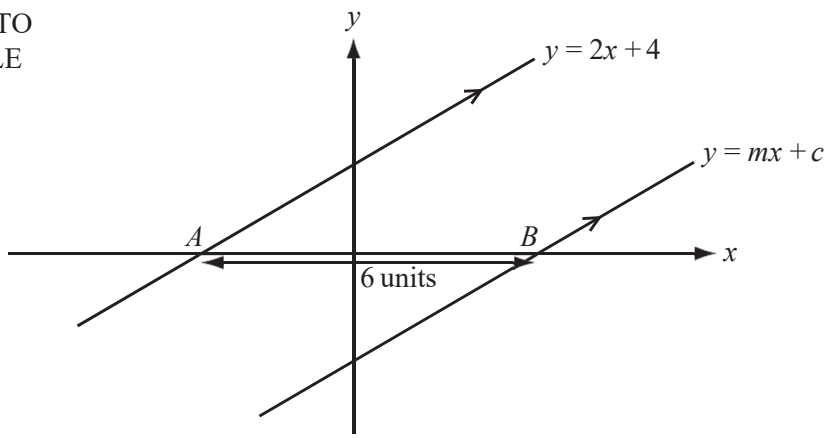
- is perpendicular to the line $y = 3x - 1$

and

- passes through the point $(7, 4)$.

[3]

NOT TO SCALE



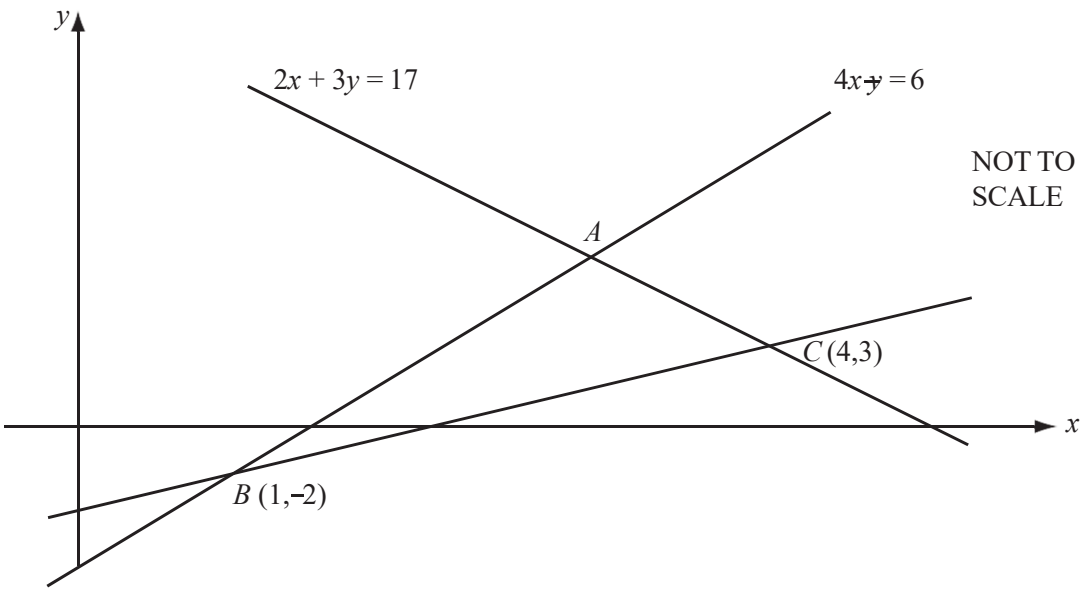

The line $y = mx + c$ is parallel to the line $y = 2x + 4$.
The distance $AB$ is 6 units.

Find the value of $m$ and the value of $c$. [4]

Find the co-ordinates of the mid-point of the line joining the points $A(2, -5)$ and $B(6, 9)$. [2]

## Question 10

A straight line passes through two points with co-ordinates (6, 8) and (0, 5).
Work out the equation of the line. [3]




In the diagram, the line $AC$ has equation $2x + 3y = 17$ and the line $AB$ has equation $4x - y = 6$.
The lines $BC$ and $AB$ intersect at $B(1, -2)$.
The lines $AC$ and $BC$ intersect at $C(4, 3)$.

(a) Use algebra to find the coordinates of the point $A$. [3]

(b) Find the equation of the line $BC$. [3]

The points $A(6,2)$ and $B(8,5)$ lie on a straight line.

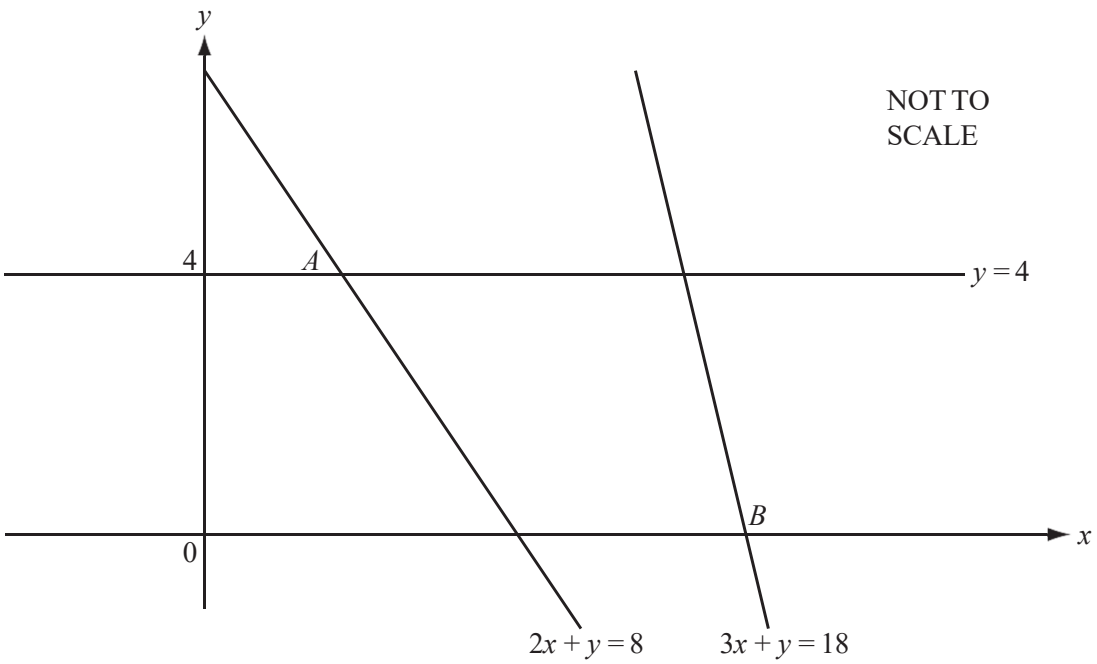
(a) Work out the gradient of this line. [1]

(b) Work out the equation of the line, giving your answer in the form $y = mx + c$. [2]

The points (2, 5), (3, 3) and ($k$, 1) all lie in a straight line.

(a) Find the value of $k$. [1]

(b) Find the equation of the line. [3]




(a) The line $y = 4$ meets the line $2x + y = 8$ at the point $A$.
Find the co-ordinates of $A$.

[1]

(b) The line $3x + y = 18$ meets the $x$ axis at the point $B$.
Find the co-ordinates of $B$.

[1]

(c) (i) Find the co-ordinates of the mid-point $M$ of the line joining $A$ to $B$.

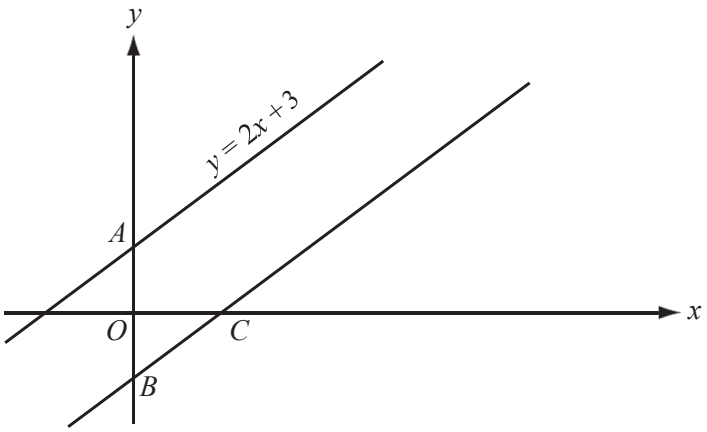
[1]

(ii) Find the equation of the line through $M$ parallel to $3x + y = 18$.

[2]

## Question 15

Find the length of the line joining the points $A(-4, 8)$ and $B(-1, 4)$. [2]

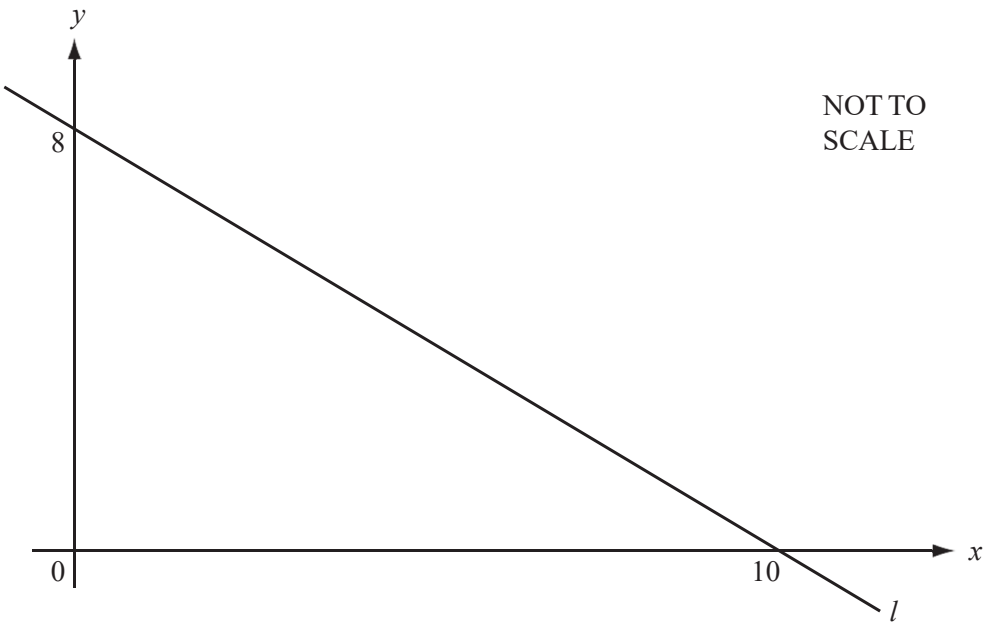



NOT TO SCALE

The distance $AB$ is 7 units.

(a) Write down the equation of the line through $B$ which is parallel to $y = 2x + 3$. [2]

(b) Find the co-ordinates of the point $C$ where this line crosses the $x$ axis. [1]




The line $l$ passes through the points (10, 0) and (0, 8) as shown in the diagram.

(a) Find the gradient of the line as a fraction in its simplest form. [1]

(b) **Write down** the equation of the line parallel to $l$ which passes through the origin. [1]

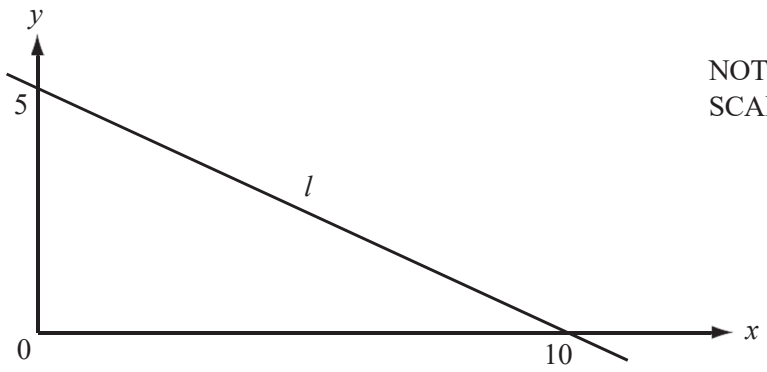
(c) Find the equation of the line parallel to $l$ which passes through the point (3, 1). [2]

The equation of a straight line can be written in the form $3x + 2y - 8 = 0$.

(a) Rearrange this equation to make $y$ the subject. [2]

(b) Write down the gradient of the line. [1]

(c) Write down the co-ordinates of the point where the line crosses the $y$ axis. [1]




NOT TO SCALE

(a) Calculate the gradient of the line $l$.

[2]

(b) Write down the equation of the line $l$.

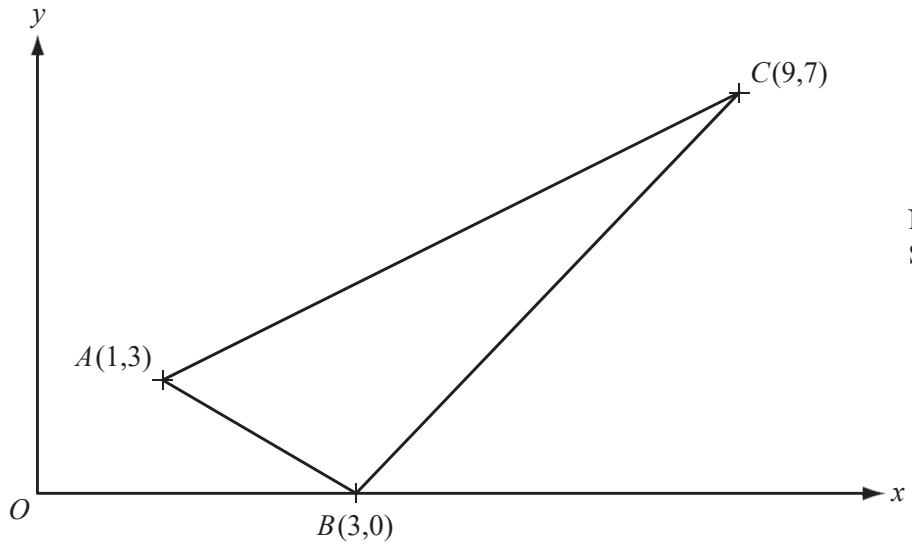
[2]

The straight line graph of $y = 3x - 6$ cuts the $x$-axis at $A$ and the $y$-axis at $B$.

(a) Find the coordinates of $A$ and the coordinates of $B$. [2]

**(b)** Calculate the length of $AB$. [2]

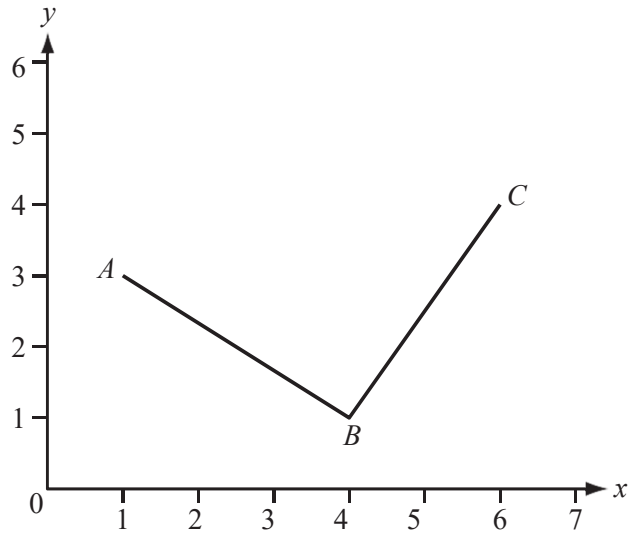
**(c)** $M$ is the mid-point of $AB$.
Find the coordinates of $M$. [1]




The co-ordinates of $A$, $B$ and $C$ are shown on the diagram, which is not to scale.

(a) Find the length of the line $AB$. [3]

(b) Find the equation of the line $AC$. [3]



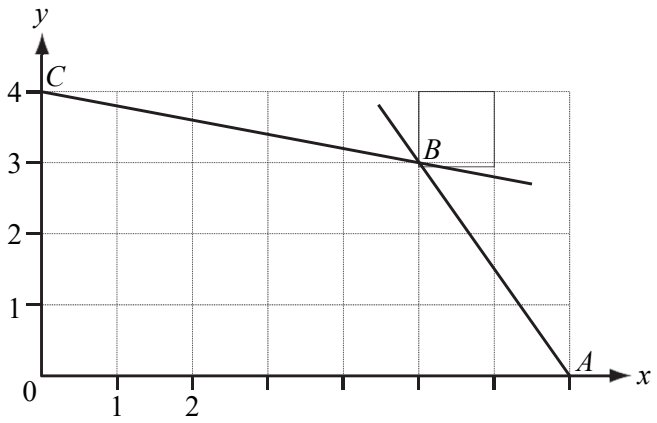

$A(1, 3)$, $B(4, 1)$ and $C(6, 4)$ are shown on the diagram.

(b) Work out the equation of the line $BC$. [3]

(c) $ABC$ forms a right-angled isosceles triangle of area 6.5 $cm^2$.

Calculate the length of $AB$. [2]

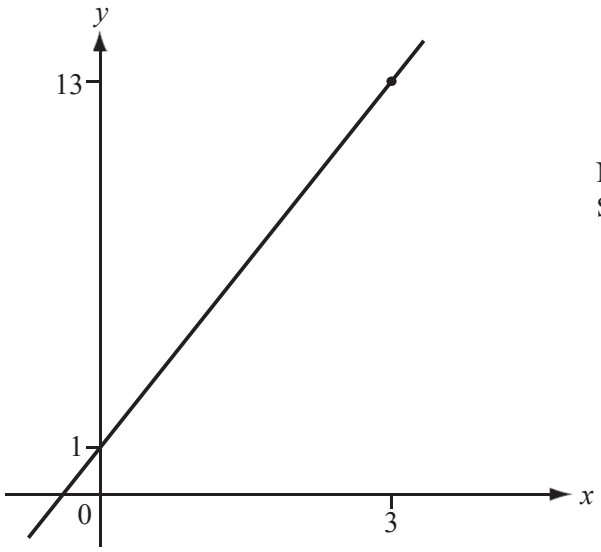
Find the length of the straight line from $Q$ (−8, 1) to $R$ (4 , 6). [3]




The lines $AB$ and $CB$ intersect at $B$.

(a) Find the co-ordinates of the midpoint of $AB$. [1]

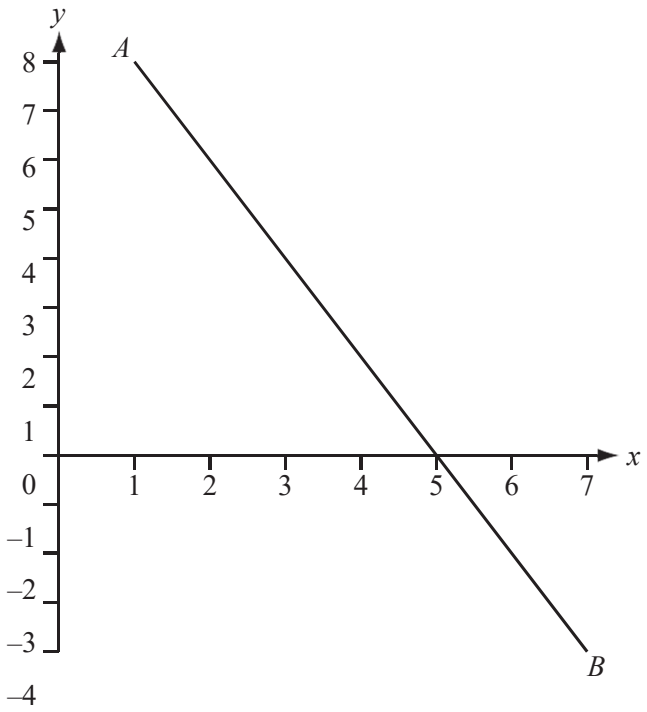
(b) Find the equation of the line $CB$. [3]




NOT TO SCALE

The diagram shows the straight line which passes through the points (0, 1) and (3, 13).

Find the equation of the straight line. [3]




**(a)** **Using a straight edge and compasses only**, construct the perpendicular bisector of $AB$ on the diagram above. [2]

(b) Write down the co-ordinates of the midpoint of the line segment joining $A(1, 8)$ to $B(7, -4)$.

[1]

(c) Find the equation of the line $AB$.

[3]

(a) The line $y = 2x + 7$ meets the $y$-axis at $A$.

Write down the co-ordinates of $A$.

[1]

(b) A line parallel to $y = 2x + 7$ passes through $B(0, 3)$.

(i) Find the equation of this line.

[2]

(ii) $C$ is the point on the line $y = 2x + 1$ where $x = 2$.

Find the co-ordinates of the midpoint of $BC$.

[3]

## Question 28

Find the equation of the straight line which passes through the points (0, 8) and (3, 2).

[3]