Level 2 Further Maths

Equation of a Line

Ensure you have: Pencil or pen

Guidance
1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Revision for this topic

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1. A straight line passes through the point $A(-8, 0)$ and the point $B(0, 6)$

(a) Find the equation of the line

(b) Work out the coordinates of the midpoint of $AB$

(c) Work out the area of triangle $OAB$
2. Find the equation of the line

3. Find the equation of the line
4. Find the equation of the straight line that passes through \((-10, -5)\) and \((-7, 4)\)

5. Do the points \((1, 4), (4, 10)\) and \((9, 20)\) lie in a straight line?

6. Where does the line \(5x + 4y - 10 = 0\) cross the x-axis?
7. A straight line has equation \(3x - 4y = 24\)

The line crosses the y-axis at the point C
The line crosses the x-axis at the point D.

Work out the area of triangle OAB

8. Find the gradient of the straight line with equation \(8x + 3y = 30\)
9. The line below passes through the point \((-20, -50)\) and \((10, 10)\)

The line meets the y-axis at the point A and the x-axis at the point B.

M is the midpoint of A and B.

Find the coordinates of the point M.

10. Work out the point of intersection of the lines

\[
y = 2x + 1 \quad \text{and} \quad y = 4x - 2
\]
11. Line 1 has equation \( y = 3x - 12 \)

(a) Find the coordinates of P

(b) Find the equation of Line 2
12. Shown below are the lines $x = 3$, $y = 2$ and $3x + 2y = 18$

Find the area of triangle ABC

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13. The straight line $l_1$ has an equation $4x + 2y + 1 = 0$

The straight line $l_2$ has an equation $y = 5 - x$

The lines $l_1$ and $l_2$ intersect at the point A

Work out the coordinates of A

14. The lines $y = x - 7$ and $y = 3x - 19$ intersect at the point A.

The point B has coordinates $(-2, 11)$

Find the equation of the line that passes through A and B.
15. A line has equation \( y = 2x + 6 \)
The line crosses the x–axis at the point A
The line crosses the y–axis at the point B
The point C has coordinates \((1, 9)\)
The point D is the midpoint of AB

Find the equation of the line that passes through C and D
16. Line $l_1$ passes through the points $(1, 5)$ and $(7, 8)$

(a) Find the equation of the line $l_1$

The line $l_1$ meets the x-axis at the point $A$

(b) Find the coordinates of the point $A$

Line $l_2$ passes through the origin and has a gradient of 2.

The lines $l_1$ and $l_2$ intersect at the point $B$.

(c) Find the area of the triangle $OAB$