

**Higher IGCSE (9 – 1) Revision Pack**

**Straight Line Graphs and Equations 3**

**Name --------------------------------**

**Questions**

**Q1.**

Point *A* has coordinates (5, 8)
Point *B* has coordinates (9, –4)

(a)  Work out the gradient of *AB*.

 ...........................................................

**(2)**

The straight line **L** has equation *y* = –4*x* + 5

(b)  Write down the gradient of a straight line that is perpendicular to **L**.

 ...........................................................

**(1)**

**(Total for question = 3 marks)**

**Q2.**

Triangle *HJK* is isosceles with *HJ* = *HK* and

H is the point with coordinates (−4, 1)
*J* is the point with coordinates (*j*, 15) where *j* < 0
*K* is the point with coordinates (6, *k*)

*M* is the midpoint of *JK*.
The gradient of *HM* is 2

Find the value of *j* and the value of *k*.

*j* = ...........................................................

*k* = ...........................................................

**(Total for question = 6 marks)**

**Q3.**

*ABCD* is a kite with *AB* = *AD* and *CB* = *CD*.

*B* is the point with coordinates (10, 19)
*D* is the point with coordinates (2, 7)

Find an equation of the line *AC*.
Give your answer in the form *py* + *qx* = *r* where *p*, *q* and *r* are integers.

 ...........................................................

**(Total for question = 5 marks)**

**Q4.**

The point *A* has coordinates (5, −4)
The point *B* has coordinates (13, 1)

(a)  Work out the coordinates of the midpoint of *AB*.

 ( ................ , ................ )

**(2)**

Line **L** has equation *y* = 2 − 3*x*

(b)  Write down the gradient of line **L**.

 ...........................................................

**(1)**

Line **L** has equation *y* = 2 − 3*x*

(c)  Does the point with coordinates (100, −302) lie on line **L**?
You must give a reason for your answer.

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**(1)**

**(Total for question = 4 marks)**

**Q5.**

Line **L** has equation 4*y* – 6*x* = 33
Line **M** goes through the point *A* (5, 6) and the point *B* (−4, *k*)

**L** is perpendicular to **M**.

Work out the value of *k*.

**(Total for question = 4 marks)**

**Q6.**

Line **A** has equation 3*x* – 4*y* = 5
Line **B** goes through the points (4, 7) and (–1, 3)

Are lines **A** and **B** parallel?
Show your working clearly.

**(Total for question = 4 marks)**

**Q7.**

(a) The equation of a line **L** is 2*x* − 3*y* = 6
Find the gradient of **L**.

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**(3)**

(b) Find the equation of the line which is parallel to **L** and passes through
the point (6, 9).

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**(2)**

**(Total for question = 5 marks)**

**Q8.**

Here are the equations of four straight lines.



Two of these lines are parallel.

(a)  Which two lines?

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**(2)**

Line **L** has a gradient of and passes through the point with coordinates (1, 3)

(b)  Find an equation of **L**.

Give your answer in the form *ax* + *by* = *c* where *a*, *b* and *c* are integers.

 ...........................................................

**(3)**

**(Total for question = 5 marks)**

**Q9.**

The point *A* has coordinates (0, 2)
The point *B* has coordinates (–4, –1)

(a)  Find the coordinates of the midpoint of *AB*.

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**(2)**

(b)  Work out the gradient of the line *AB*.

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**(2)**

(c)  Find an equation of the line *AB*.

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**(2)**

**(Total for question = 6 marks)**

**Q10.**

The straight line **L** has equation  3*x* – 2*y* = 15

(a)  Find the gradient of **L**.

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**(3)**

(b)  Find the coordinates of the point where **L** crosses the *y*-axis.

 ( ................ , ................ )

**(1)**

(c)  Find an equation of the line that is parallel to **L** and crosses the *x*–axis at (–2, 0)

 ...........................................................

**(2)**

**(Total for question = 6 marks)**

**Q11.**

(a)  Find the gradient of the line with equation 3*y* − 2*x* = 6

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**(2)**

(b)  Find an equation of the line with gradient −3 that passes through the point (2, 5).

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**(2)**

**(Total for question = 4 marks)**

**Q12.**

(a) Find the gradient of the line with equation 3*x* + 4*y* = 10

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**(3)**

(b) Find the coordinates of the point of intersection of the line with equation 3*x* + 4*y* = 10
and the line with equation 5*x* − 6*y* = 23
Show your working clearly.

(.............................. , ..............................)

**(5)**

**(Total for question is 8 marks)**

**Q13.**

The straight line **L** (−2, 3) and (6, 9)

Find an equation of the line that is parallel to **L** and passes through the point (5, −1)
Give your answer in the form *ax* + *by* = *c* where *a*, *b* and *c* are integers.

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**(Total for question = 5 marks)**

**Q14.**

The line **L** passes through the point (3,1) and is parallel to the line with equation *y* = – 2*x*.

Find an equation for the line **L**.

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**(Total for question = 3 marks)**

**Q15.**

Find an equation of the line that is parallel to the line *y* = 4 – 2*x* and passes through the point (3, 7)

 ...........................................................

**(Total for question = 3 marks)**

**Q16.**

The points (1, –1) and (4, 7) lie on the straight line **L**.

Find an equation for **L**.

Give your equation in the form *ax* + *by*= *c* where *a*, *b* and *c* are integers.

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**(Total for question = 4 marks)**

 **Q17.**

The line **L** passes through the points (0, −2) and (6, 1)

(a)   Find an equation of the line **L**.

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**(3)**

(b)   Find an equation of the line that is parallel to **L** and which passes through the point (4, −2)

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**(2)**

**(Total for Question is 5 marks)**

**Q18.**

The straight line **L** is shown on the grid.



(a)  Find an equation of **L**.

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**(2)**

(b)  Find an equation of the line that is parallel to **L** and passes through the point (5, 4)

 ...........................................................

**(2)**

**(Total for question = 4 marks)**

**Q19.**

*A* is the point with coordinates (1, 3)
*B* is the point with coordinates (−2, −1)

The line **L** has equation 3*y* = 4 − 2*x*

Is line **L** parallel to *AB*?
Show your working clearly.

**(Total for question = 3 marks)**

**Q20.**

(a)  The straight line **L** passes through the points (0, 12) and (10, 4).
Find an equation for **L**.

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**(3)**

(b)  Find an equation of the straight line which is parallel to **L** and passes through the point (5, −11).

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**(2)**

**(Total for Question is 5 marks)**