Write your name, centre number and candidate number in the boxes below.

Surname	Other names

Centre number | | | | | |

Candidate number | | | | |

STEM | Exam Builder

Parallel and perpendicular lines

Time allowed: 1 hour

Subject code **0580**

Mathematics

Questions from Paper 1, Paper 2, Paper 3 and Paper 4

You must have: a ruler marked in centimetres and millimetres, a protractor, compasses, a pen, an HB pencil and an eraser.
You may use a calculator.

Total marks

/ 49

Instructions

- Answer every question in the space provided on this paper.
- Write in black or dark blue ink. Pencil may be used for diagrams and graphs.
- Fill in your name, centre number and candidate number above.
- Show your working: a correct method can earn marks even if the answer is wrong.
- Unless a question says otherwise, give answers that are not exact to 3 significant figures, and angles in degrees to 1 decimal place.

Information

- This paper has 10 questions worth 49 marks in total.
- The marks for each question or part are shown in brackets, for example [3].

Advice

- Read every question through once before you write anything.
- Use the marks in brackets to judge how long to spend on each part.
- If you finish early, go back and check your working.

STEM | Exam Builder

Print at 100% (Actual size) so diagrams keep their real measurements.

1 The equation of line L is $y = 5x - 3$.

(a) Write down the gradient of line L.

..... [1]

(b) Write down the equation of a line parallel to line L.

$y =$ ..... [1]

(a) Equations of straight lines (y = mx + c) (b) Parallel lines Click for more variations

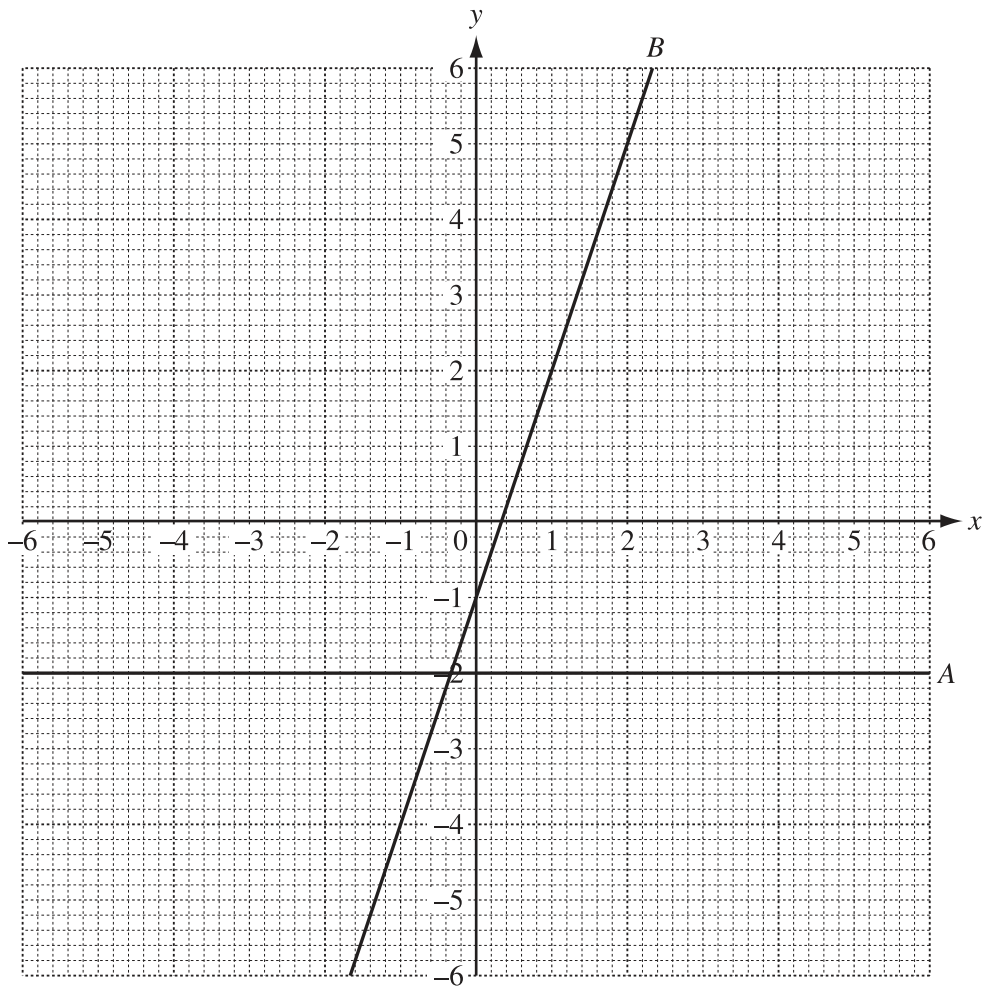
2 Find the gradient of a line that is perpendicular to $8y + 4x = 5$.

..... [2]

Perpendicular lines Click for more variations

STEM | Exam Builder

3



The diagram shows two straight lines, A and B, drawn on a grid.

(a) Write down the equation of line A.

Answer(a) ..... [1]

(b) The equation of line B is $y = 3x - 1$.

(i) Draw a line parallel to line B that passes through the point (0, 2). [1]

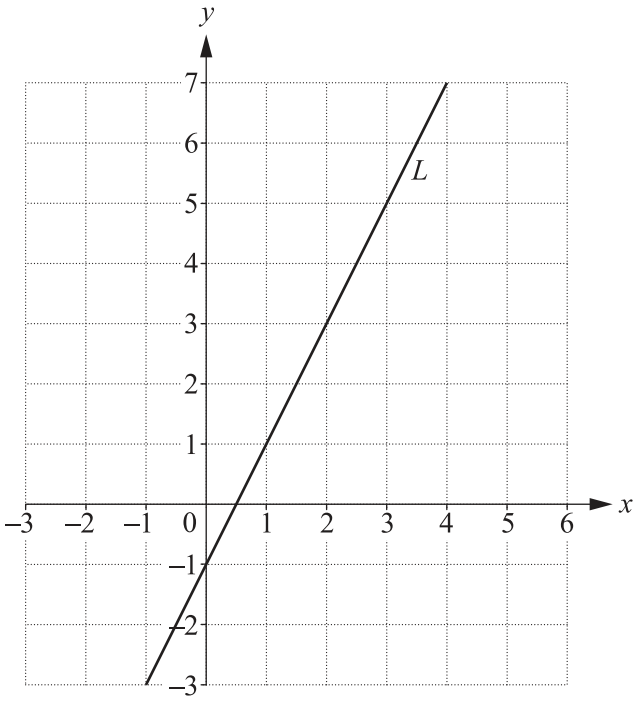
(ii) Write down the equation of your line in the form $y = mx + c$.

Answer(b)(ii) $y =$ ..... [2]

STEM | Exam Builder

(a) Drawing straight-line graphs (b)(i) Parallel lines (b)(ii) Parallel lines Click for more variations

4



(a) Work out the gradient of the line L.

..... [2]

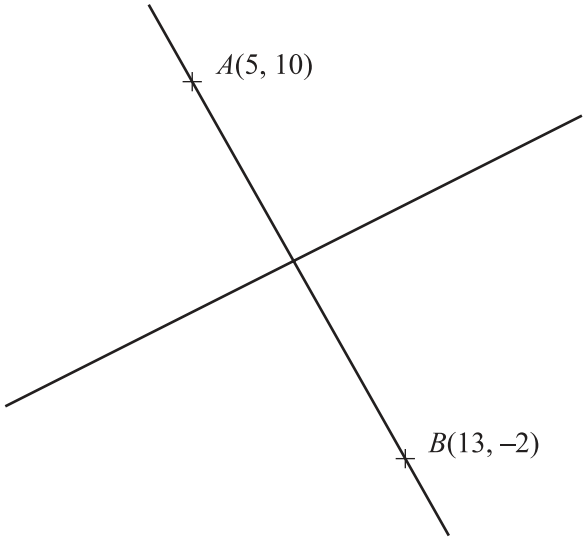
(b) Write down the equation of the line parallel to the line L that passes through the point (0, 6).

..... [2]

(a) Gradient of a line (b) Parallel lines Click for more variations

STEM | Exam Builder

5



NOT TO SCALE

$A(5, 10)$ and $B(13, -2)$ are two points on the line AB.
The perpendicular bisector of the line AB has gradient $\frac{2}{3}$.

Find the equation of the perpendicular bisector of AB.

Answer ..... [4]

Perpendicular lines Click for more variations

STEM | Exam Builder

6 A is the point $(17, 9)$ and B is the point $(23, 39)$.

Find the equation of the perpendicular bisector of line AB.
Give your answer in the form $y = mx + c$.

$y =$ ..... [5]

Perpendicular lines Click for more variations

STEM | Exam Builder

7 A line from the point (2, 3) is perpendicular to the line $y = \frac{1}{3}x + 1$.
The two lines meet at the point P.

Find the coordinates of P.

(..... , ...) [5]

Perpendicular lines Click for more variations

STEM | Exam Builder

8 A is the point (2, 3) and B is the point (7, −5).

(a) Find the co-ordinates of the midpoint of AB.

(....., ...) [2]

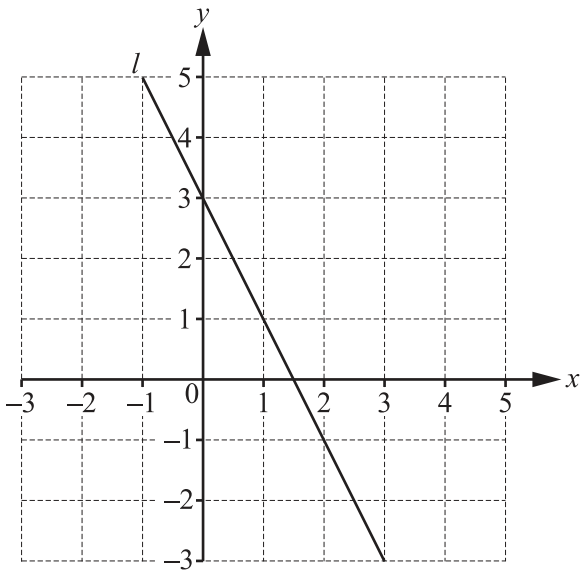
(b) Find the equation of the line through A that is perpendicular to AB.
Give your answer in the form $y = mx + c$.

$y =$ ..... [4]

(a) Midpoint of a line (b) Perpendicular lines Click for more variations

STEM | Exam Builder

9



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

$y =$ ..... [3]

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

Find the equation of this line.

..... [3]

(a) Equations of straight lines (y = mx + c) (b) Perpendicular lines Click for more variations

STEM | Exam Builder

10 A line joins the points $A(-3, 8)$ and $B(2, -2)$.

(a) Find the co-ordinates of the midpoint of AB.

(..... , ...) [2]

(b) Find the equation of the line through A and B.
Give your answer in the form $y = mx + c$.

$y =$ ..... [3]

(c) Another line is parallel to AB and passes through the point (0, 7).

Write down the equation of this line.

..... [2]

(d) Find the equation of the line perpendicular to AB which passes through the point (1, 5).
Give your answer in the form $ax + by + c = 0$ where a, b and c are integers.

..... [4]

STEM | Exam Builder

(a) Midpoint of a line (b) Equations of straight lines (y = mx + c) (c) Parallel lines (d) Perpendicular lines

Click for more variations