

1 For the following graphs, work out the y intercept and the gradients

a) $y = 2x - 5$

b) $2y = 2x + 6$

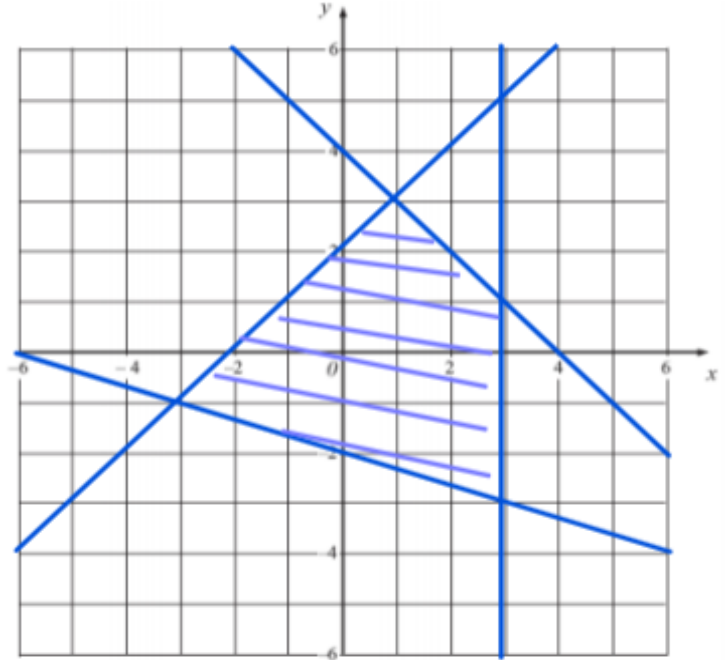
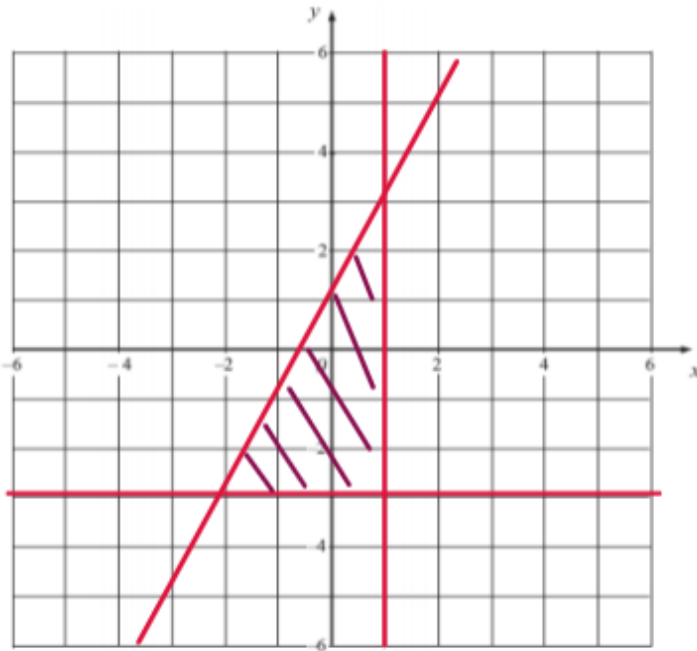
c) $y + x = 7$

d) $3y - 6x = 12$

e) $8 - 3x = 4y$

2 a) The shaded region satisfies 3 inequalities state these inequalities

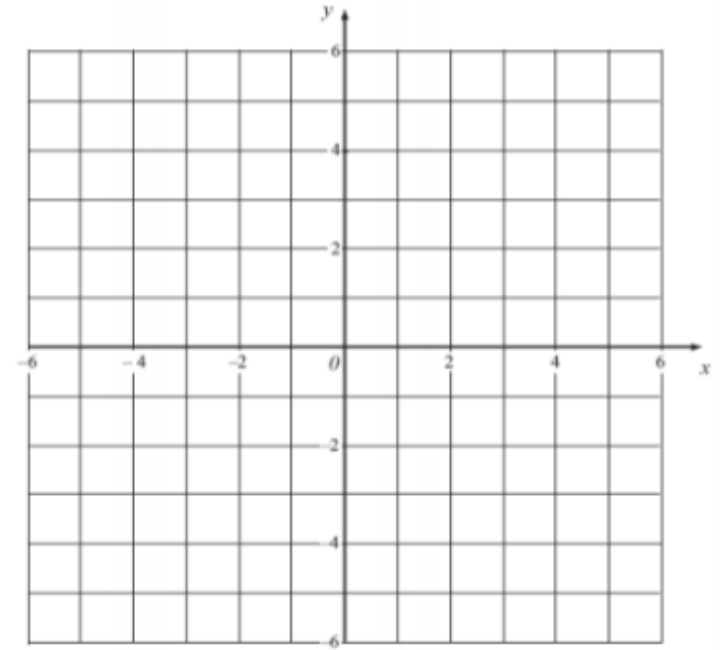
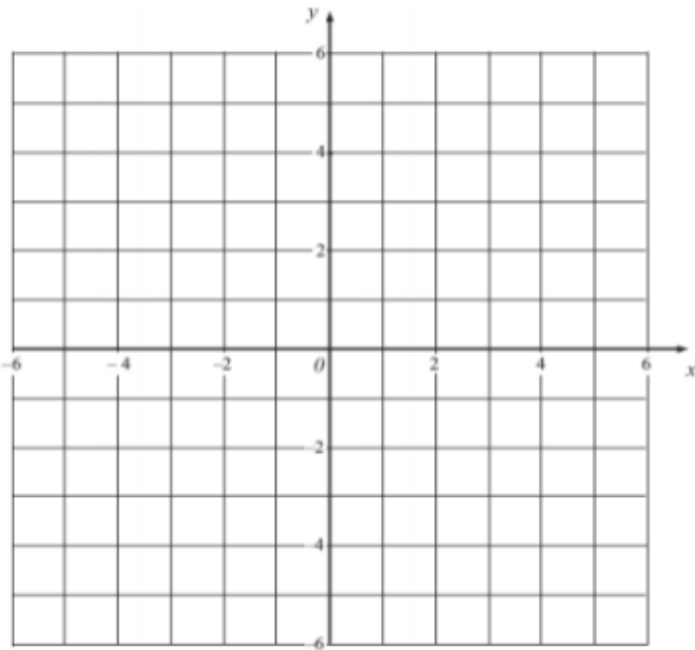
b) The shaded region satisfies 4 inequalities state these inequalities



3 On the given grids show by shading the region that satisfies all of the inequalities hint, draw just the line first

a) $y \leq 2$
 $y \geq 2x - 4$
 $y + 4x \geq -3$

b) $y \geq -1$
 $y - x \leq 4$
 $2y + 6x \leq 4$



4 Work out the midpoints of the line segment joining the 2 coordinates

a) (2, 2) (6, 8)

b) (-3, 10) (7, -2)

c) (0, 1)(3, 10)

d) (-7, -4)(5,0)

5 Find the lengths of the line segments

correct to 3 significant figures

a) (0,0) (3, 4)

b) (1, 2) (5, 8)

c) (15, -2) (27, -10)

d) (3, 7) (-4, 9)

6 There are two pairs of equations that have parallel gradients, which are they?

a) $y = 3x - 2$

b) $y = -1/2 x + 1$

c) $4y - 2x = 8$

d) $2y + x = 9$

e) $y = -3x + 6$

f) $2y - 6x = 10$

7 For the following gradients, find the perpendicular gradients

a) 3

b) $1/2$

c) -4

d) $3/4$

e) $-1/5$

f) $-5/6$

g) $1 \frac{1}{2}$

8 Find the gradients of the lines joining the 2 coordinates

a) (0, 0)(2, 4)

b) (1, 3)(6, 8)

c) (-2, 8)(-5, 2)

d) (3, -14)(-6, -11)

e) (-4, -5)(-12, -11)

9 Now find the equations of the lines joining the pairs of points above

10 L1 has the equation $y = 2x + 3$

a) L2 is parallel to L1, what is the gradient of L2?

b) L2 passes through the coordinate (3, 4) Work out the equation of the line L2

c) A third line L3 is also parallel to the line L1, it passes through the coordinate (-4, -2)
Work out the equation of L3

11 Find the equation of the line that is parallel to $y = 3x + 5$ & passes through (2,2)

12 Find the equation of the line that is parallel to $y + 2x = -3$ & passes through (1,1)

13 Find the equation of the line that is parallel to $4y - 2x = 8$ & passes through (4,8)

14 Find the equation of the line that is perpendicular to $y = 3x + 2$ and passes through point (6, 1)

15 Find the equation of the line that is perpendicular to $6y + 3x = 12$ and passes through the point (-2, 9)

16 Find the equation of the line that is perpendicular to $3x + 4y = 6$ and passes through (-3, -7)

17 L1 has the equation $2y + x = 4$

L2 passes through (2,3) (8,6) are L1 and L2 perpendicular?

18 A line joins point A (4, 7) and point B (7, 12)

Find the equation of the line, put your answer in the form $ax + by = c$

19 What is the equation of a line that is parallel to $y = 3x - 3$ and passes through (21, 57)

20 Point C lies on the line segment DE. The ratio of length DC : CE is 1 : 2

Find the coordinates of C when D (2, 4) E(8, 13)

21 The points A B and C lie in order on a straight line

The coordinates of A are (2, 5)

The coordinates of B are (4, p)

The coordinates of C are (q, 21)

Given that $AC = 4AB$, find the values of p and q

22 The point A has coordinates (4, 3)

The point B has coordinates (8, 15)

M is the midpoint of the line AB

Find the coordinates of M

A second line is perpendicular to the line AB and passes through M, find the equation of this second line

23 The straight line L1 has equation $y = 6 - 2x$

The straight line L2 is perpendicular to L1 and passes through the point (4, 7)

Find the coordinates of the point where the line L2 crosses the x axis

24 a) Find the gradient of the line with equation $2x + 3y = 7$

b) Find the coordinates of the point of intersection of the line $2x + 3y = 7$ and the line with the equation $5x - y = 26$

Show your working clearly