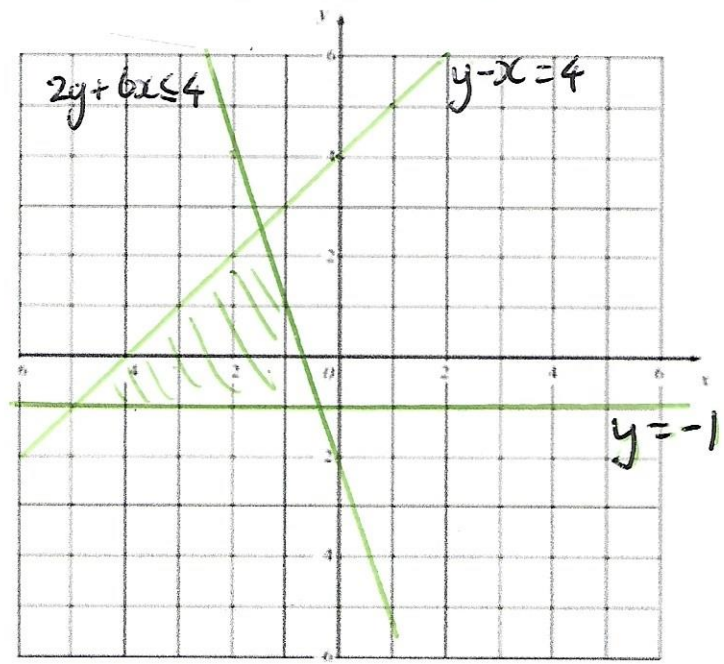
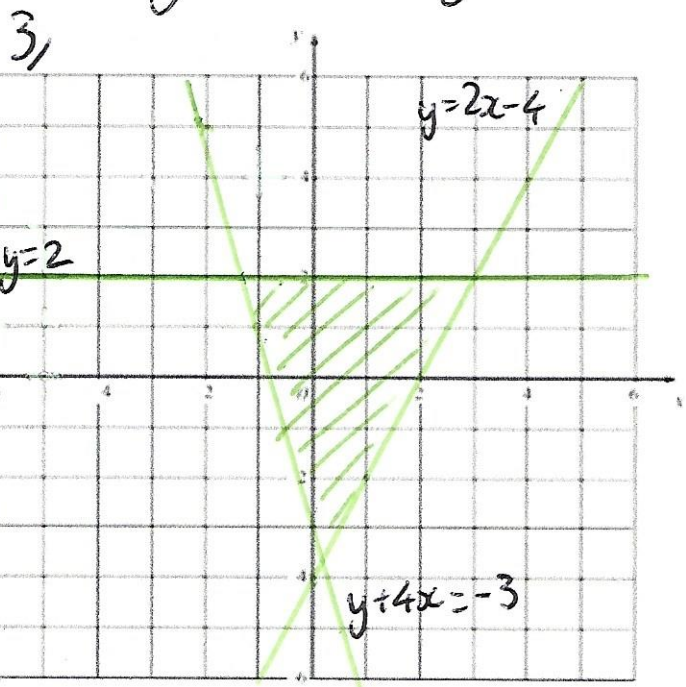


Higher IGCSE Wk 13 answers

	a	b	c	d	e
1/ y intercept	-5	3	7	4	2
2/ gradient	2	1	-1	2	$-\frac{3}{4}$

2 a, Equation of 3 lines \rightarrow Ineq
 $x=1 \rightarrow x \leq 1$
 $y=3 \rightarrow y \geq 3$
 $y=2x+1 \rightarrow y \leq 2x+1$

b, Equation of 4 lines \rightarrow Ineq
 $x=3 \rightarrow x \leq 3$
 $y=x+2 \rightarrow y \leq x+2$
 $y=-\frac{1}{3}x-2 \rightarrow y \geq -\frac{1}{3}x-2$
 $y=-x+4 \rightarrow y \leq -x+4$



4, a, (4, 5) b, (2, 4) c, (1.5, 5.5) d, (-1, -2)

5, a, length² = $3^2 + 4^2 = \sqrt{25} = 5$ b, 7.21 c, 14.4 d, 7.28

6, b, k d, k a, k f

7, a, $-\frac{1}{3}$ b, -2 c, $\frac{1}{4}$ d, $-\frac{4}{3}$ e, 5 f, $\frac{6}{5}$ g, $-\frac{2}{3}$

8, a, $\frac{4}{2} = 2$ b, 1 c, $\frac{-6}{-3} = +2$ d, $\frac{3}{-9} = -\frac{1}{3}$ e, $\frac{-6}{-8} = \frac{3}{4}$

9, a, $y=2x$ b, $y=x+2$ c, $y=2x+12$ d, $y=-\frac{1}{3}x-\frac{2}{3}$ e, $y=\frac{3}{4}x-2$

10, a) 2

$4 = 2x + c$
 $c = -2$

$y = 2x - 2$

$y - 2 = 2x - 4 + c$

$6 = c$

$y = 2x + 6$

11, $y = 3x + c$

$2 = 6 + c$
 $c = -4$

$y = 3x - 4$

12, $y = -2x + c$

$1 = -2 + c$
 $c = 3$

$y = -2x + 3$

13, $y = \frac{1}{2}x + c$

$8 = 2 + c$
 $c = 6$

$y = \frac{1}{2}x + 6$

14, gradient = $-\frac{1}{3}$

$y = -\frac{1}{3}x + c$
 $1 = -2 + c$
 $c = 3$

$y = -\frac{1}{3}x + 3$

15, $y = -\frac{1}{2}x + 2$

perpendicular gradient = 2

$y = 2x + c$

$9 = -4 + c$
 $c = 13$

$y = 2x + 13$

16, 1st line $y = -\frac{3}{4}x + \frac{3}{2}$

perpendicular gradient = $\frac{4}{3}$

$y = \frac{4}{3}x + c$

$-7 = -4 + c$
 $c = -3$

$y = \frac{4}{3}x - 3$

17, L_1 gradient = $-\frac{1}{2}$
 perpen = 2

NO they are NOT perpendicular

L_2 gradient = $\frac{6-3}{8-2} = \frac{3}{6} = \frac{1}{2}$ perpen = -2

18, Gred = $\frac{12-7}{7-4} = \frac{5}{3}$

$y = \frac{5}{3}x + c \Rightarrow$

$7 = \frac{5}{3} \times 4 + c$

$7 = \frac{20}{3} + c$

$c = \frac{1}{3}$

$\therefore y = \frac{5}{3}x + \frac{1}{3}$

$-\frac{5}{3}x + y = \frac{1}{3} \Rightarrow \boxed{-5x + 3y = 1}$

19, $57 = 63 + c$ $c = -6$ $y = 3x - 6$

20, x gap is 6 coordinates DC = $\frac{1}{3}$ of 6 \Rightarrow 2 coordinates $x = 4$

y gap is 9 coordinates DC = $\frac{1}{3}$ of 9 \Rightarrow 3 coordinates $y = 7$

$C = (4, 7)$

21, x coordinates $AC = 4AB$
 $8 \text{cosr} \quad 2 \text{cosr}$
 $\therefore q = 10$

y coordinates $AC = 4AB$
 $16 \text{cosr} - 4 \text{cosr}$
 $\therefore p = 9$

$\begin{array}{r} 2 \quad 4 \quad 10 \\ \hline 2 \quad 6 \end{array}$
 $\begin{array}{r} 5 \quad 9 \quad 21 \\ \hline 4 \quad 12 \end{array}$

22, Midpoint = (6, 9)

Gradient of AB = $\frac{15-3}{8-4} = \frac{12}{4} = 3$

Equation of perpendicular line \Rightarrow

Perpendicular gradient = $-\frac{1}{3}$

$y = -\frac{1}{3}x + c$

$9 = -2 + c$

$c = 11$

$y = -\frac{1}{3}x + 11$

23, L_1 gradient = -2 L_2 gradient = $\frac{1}{2}$

Equation of $L_2 \Rightarrow y = \frac{1}{2}x + c \leftarrow (4, 7)$

$7 = 2 + c \quad c = 5$

$y = \frac{1}{2}x + 5$

L_2 crosses the x axis when $y = 0$ i.e. $\frac{1}{2}x + 5 = 0$

$\frac{1}{2}x = -5$

$x = -10$

L_2 crosses the x axis at $x = -10$

24, gradient = $-\frac{2}{3}$

to find point of intersection, solve simultaneous equations

① $2x + 3y = 7$

② $5x - y = 26 \quad \times 3$

③ $15x - 3y = 78$

① $10 + 3y = 7$

$3y = -3$

$y = -1$

①+③ $17x = 85$

$x = 5$

Intersection point = (5, -1)