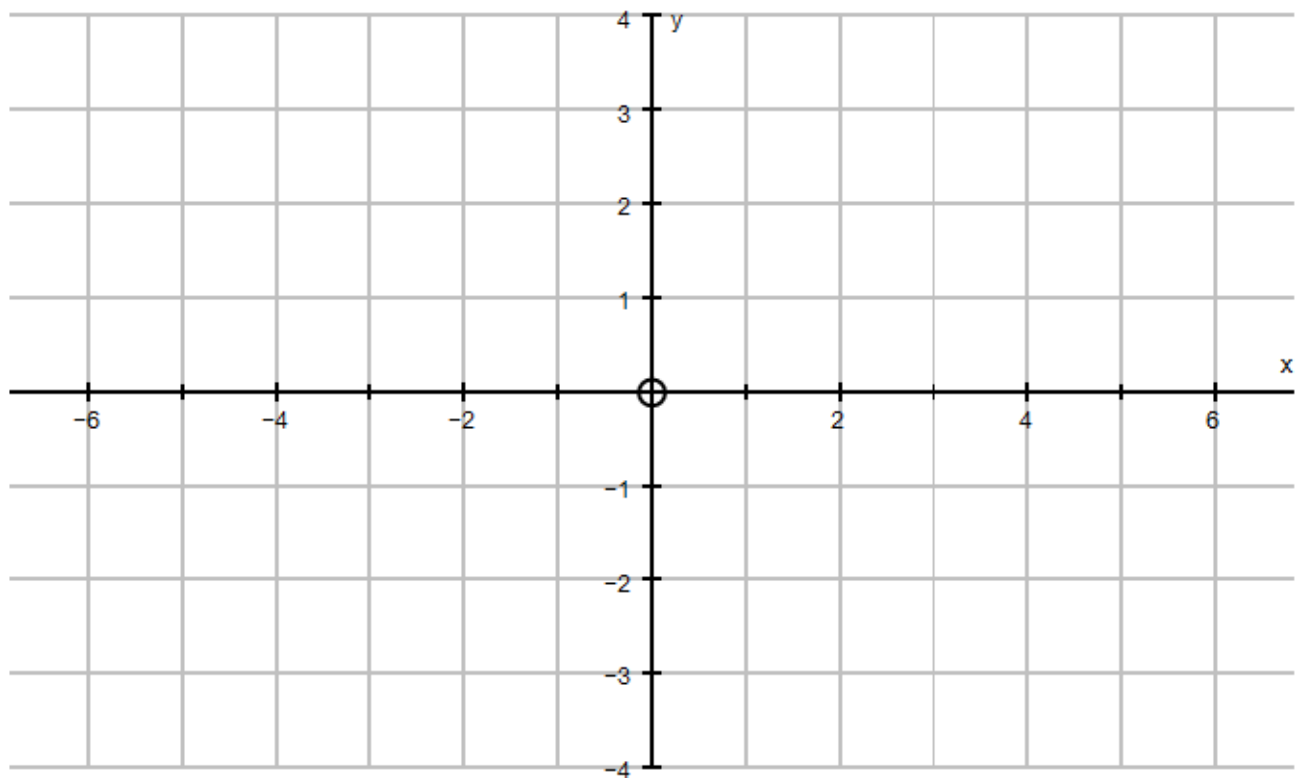


Coordinate Geometry: Straight Line Graphs (Part 1) KS3 and KS4

1. On the diagram below, draw the graphs of the following straight lines and label each one clearly with its equation.

(a) $y = 3$ (b) $x = -2$ (c) $y = x$ (d) $y = -x$



2. (a) Complete the table of values for each straight line whose equation is given in the table for $-3 \leq x \leq 3$. Some values have been done for you.

x	-3	-2	-1	0	1	2	3
$y = x$	-3		-1	0			3
$y = x + 1$			0	1			4
$y = x - 1$			-2	-1			2

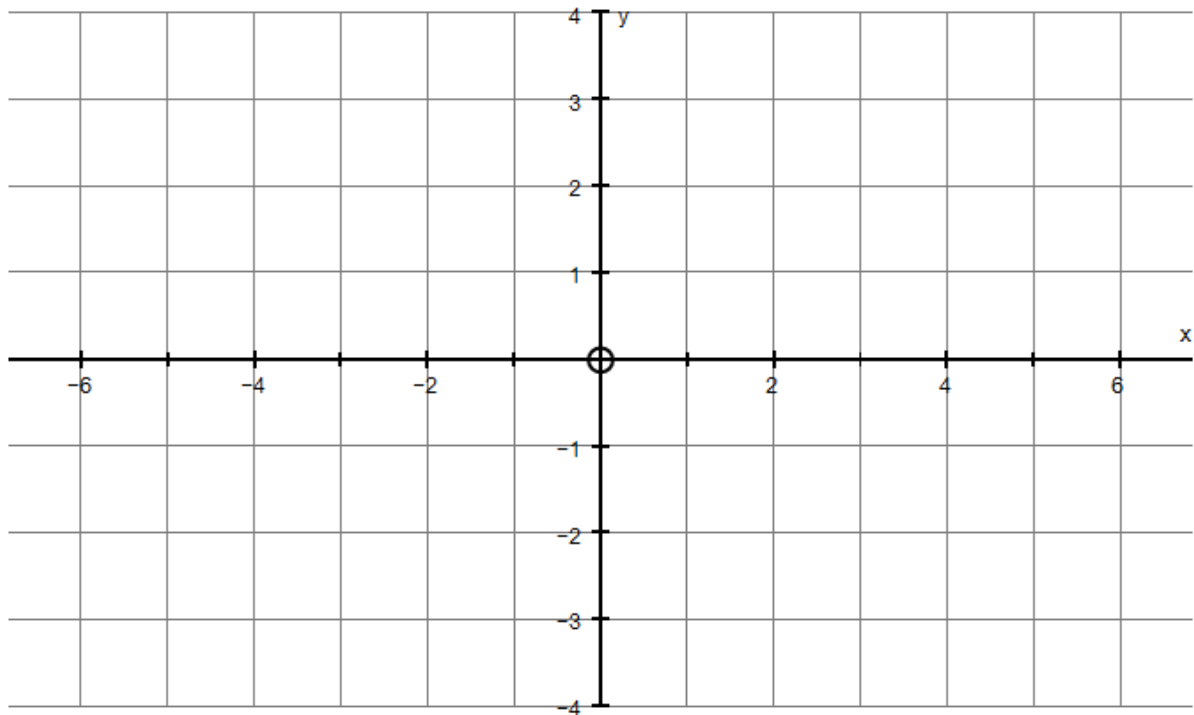
- (b) On the diagram below, draw the graph of each straight line and label each one clearly with its equation.

(c) What do you notice about all three straight lines?

(d) Hence, draw the graph of (i) $y = x + 3$ (ii) $y = x - 3$

(e) Write the equation of a line parallel to the line $y = x$.

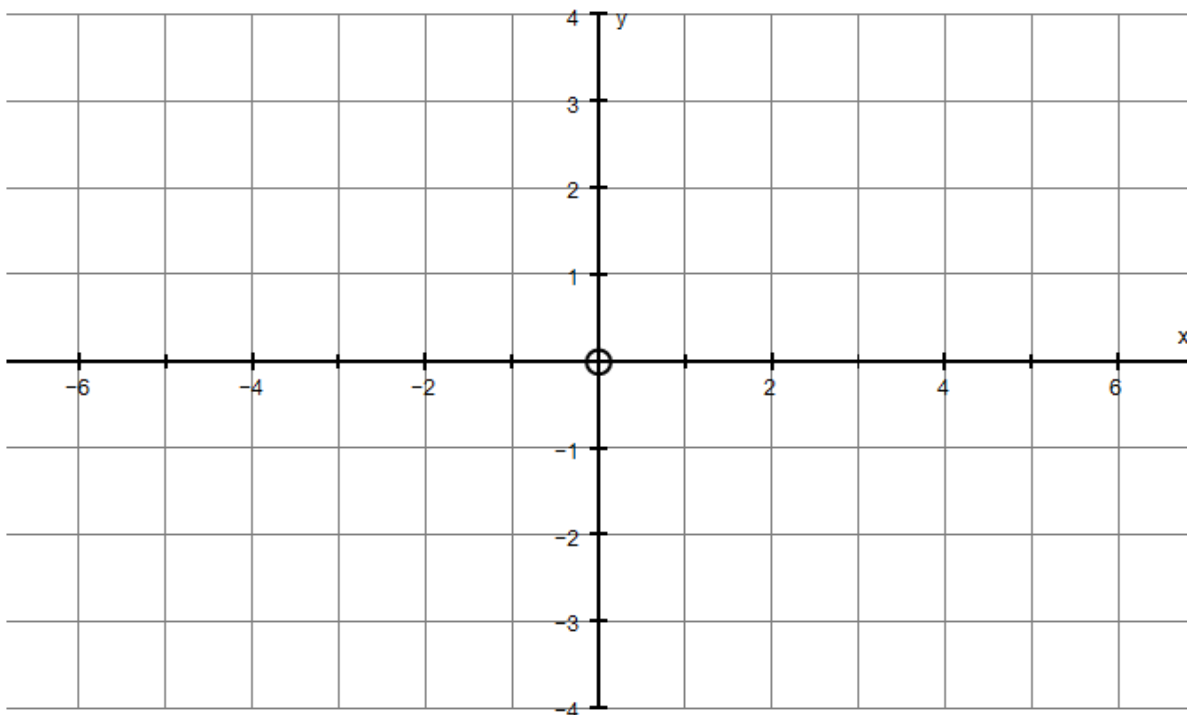
(f) Is the line $y = x + c$ parallel to the line $y = x$, where c is a constant?



3. (a) Complete the table of values for each straight line whose equation is given in the table for $-3 \leq x \leq 3$. Some values have been done for you.

x	-3	-2	-1	0	1	2	3
$y = -x$	3		1	0			-3
$y = -x + 1$			2	1			-2
$y = -x - 1$			0	-1			-4

- (b) On the diagram below, draw the graph of each straight line and label each one clearly with its equation.
- (c) What do you notice about all the straight lines?
- (d) Hence draw the graph of (i) $y = -x + 3$ (ii) $y = -x - 3$
- (e) Write the equation of a line parallel to the line $y = -x$.
- (f) Is the line $y = -x + c$ parallel to the line $y = -x$, where c is a constant?



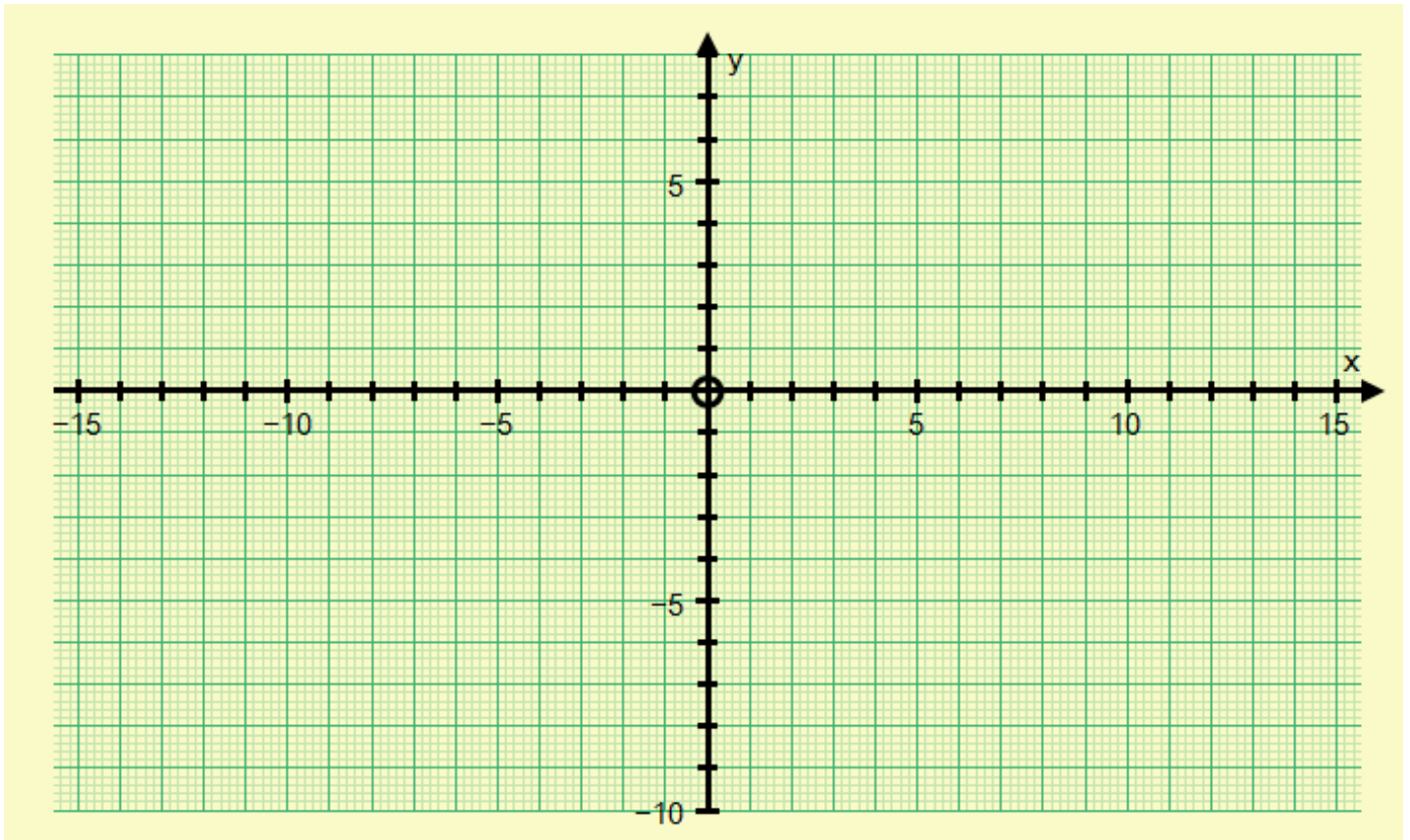
4. (a) Complete the table of values below and draw the graph of $y = 2x - 3$.

Some y-values have been done for you.

x	-3	-2	-1	0	1	2	3
y		-7		-3	-1		

(b) Use the graph to find the value of x when:

- (i) $y = 4$ (ii) $y = 1.5$ (iii) $y = -6$ (iv) $y = -1.5$



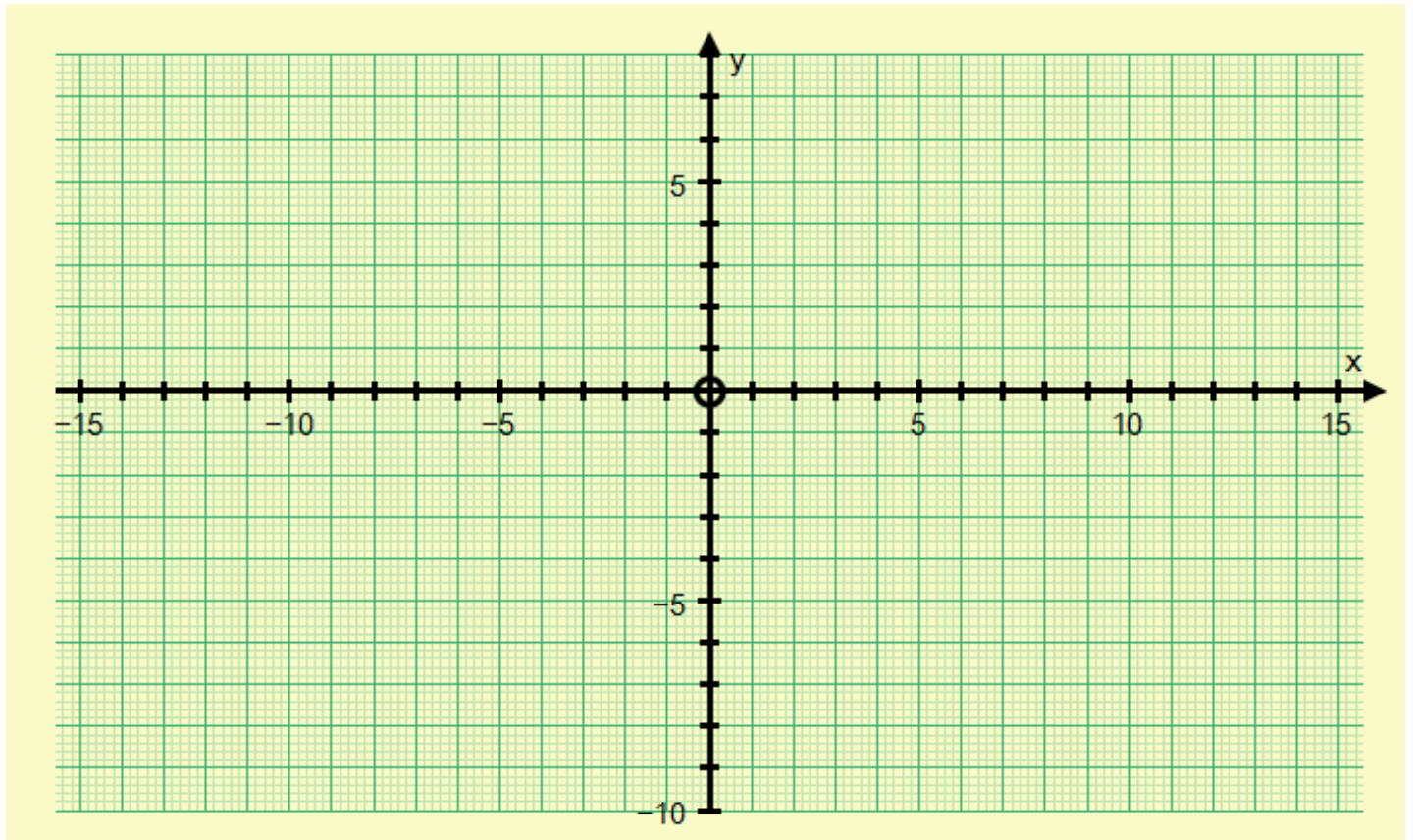
5. (a) Complete the table of values below and draw the graph of $y = -2x + 3$.

Some y -values have been done for you.

x	-2	-1	0	1	2	3
y	7		3	1		

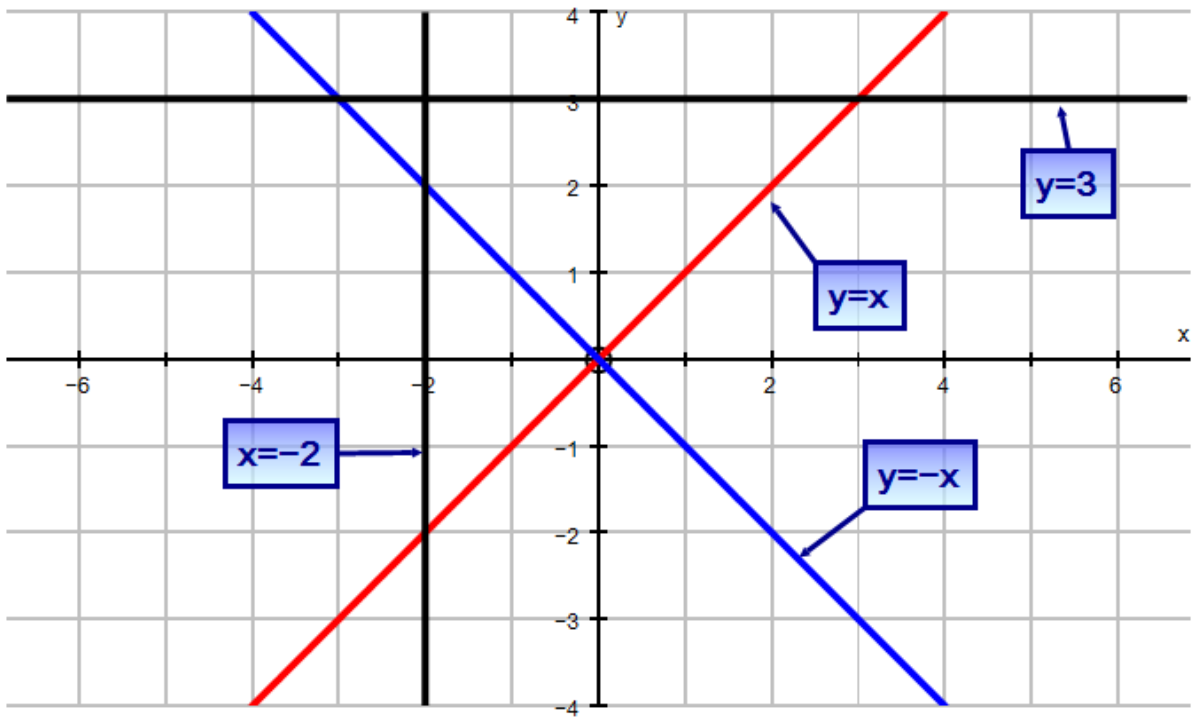
(b) Use the graph to find the value of x when:

- (i) $y = 4$ (ii) $y = 1.5$ (iii) $y = -6$ (iv) $y = -1.5$



Answers:

1.



2. (a)

x	-3	-2	-1	0	1	2	3
$y = x$	-3	-2	-1	0	1	2	3
$y = x + 1$	-2	-1	0	1	2	3	4
$y = x - 1$	-4	-3	-2	-1	0	1	2

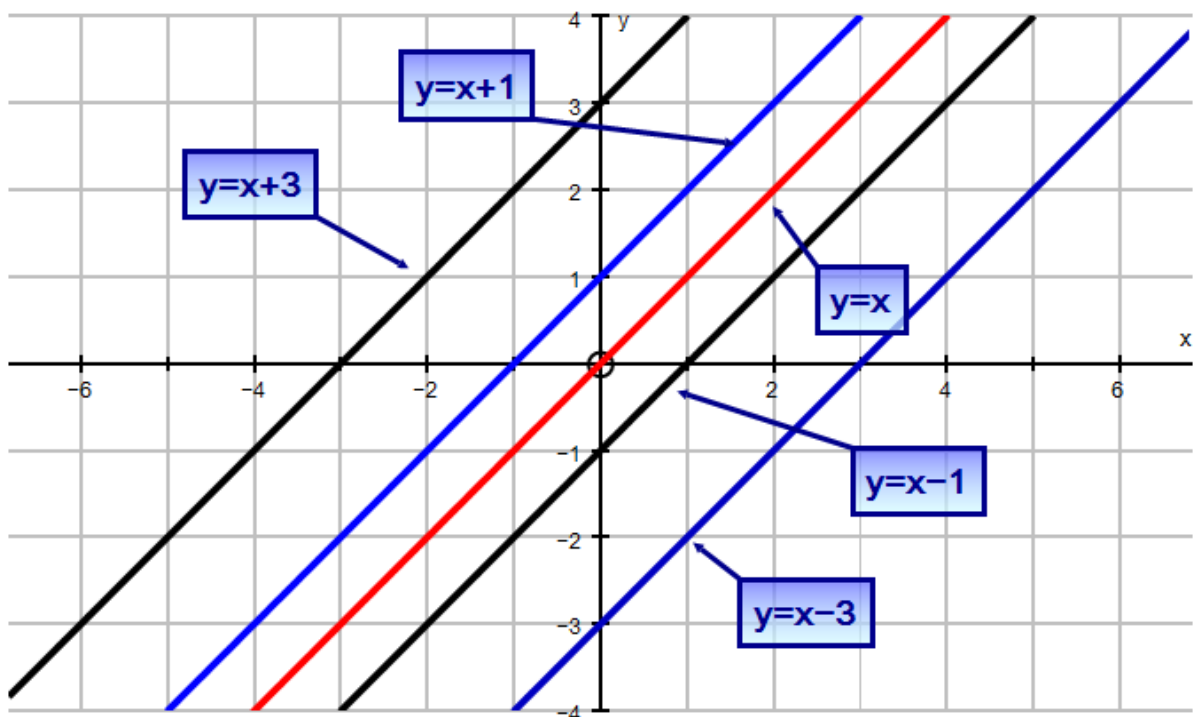
(b) See graph below

(c) They are parallel.

(d) See graph below (i) $y = x + 3$ (ii) $y = x - 3$

(e) $y = x \pm a$. (a is a positive constant)

(f) Yes



3. (a)

x	-3	-2	-1	0	1	2	3
$y = -x$	3	2	1	0	-1	-2	-3
$y = -x + 1$	4	3	2	1	0	-1	-2
$y = -x - 1$	2	1	0	-1	-2	-3	-4

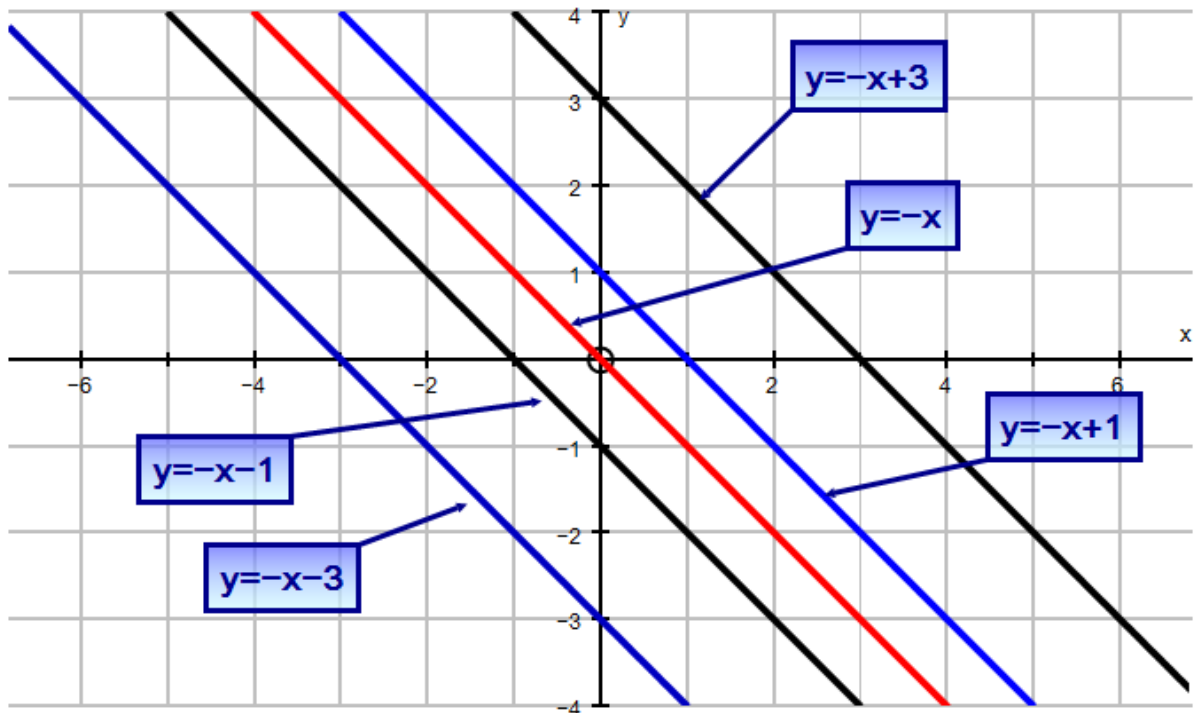
(b) See graph below

(c) They are parallel.

(d) See graph below (i) $y = -x + 3$ (ii) $y = -x - 3$

(e) $y = x \pm a$. (a is a positive constant)

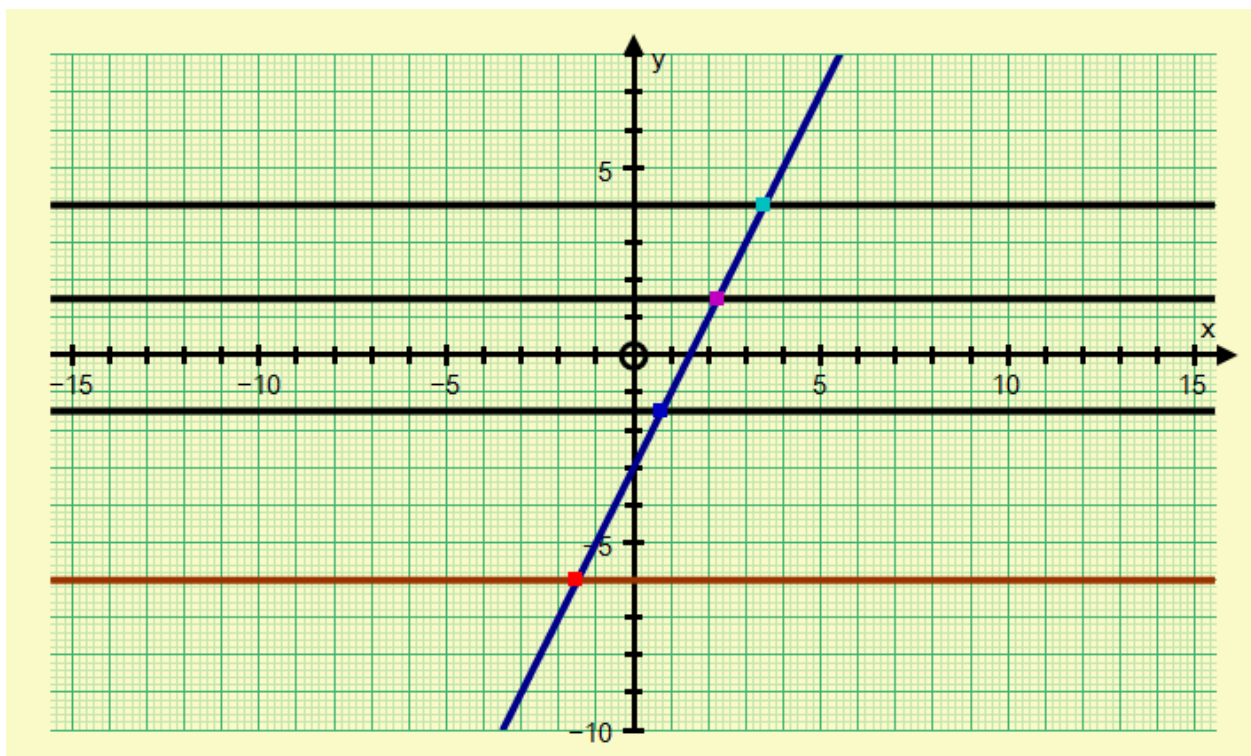
(f) Yes



4. (a)

x	-3	-2	-1	0	1	2	3
y	-9	-7	-5	-3	-1	1	3

- (b) (i) approx. $x = 3.5$ (ii) approx. $x = 2.3$
(iii) approx. $x = -1.5$ (iv) approx. $x = 0.8$

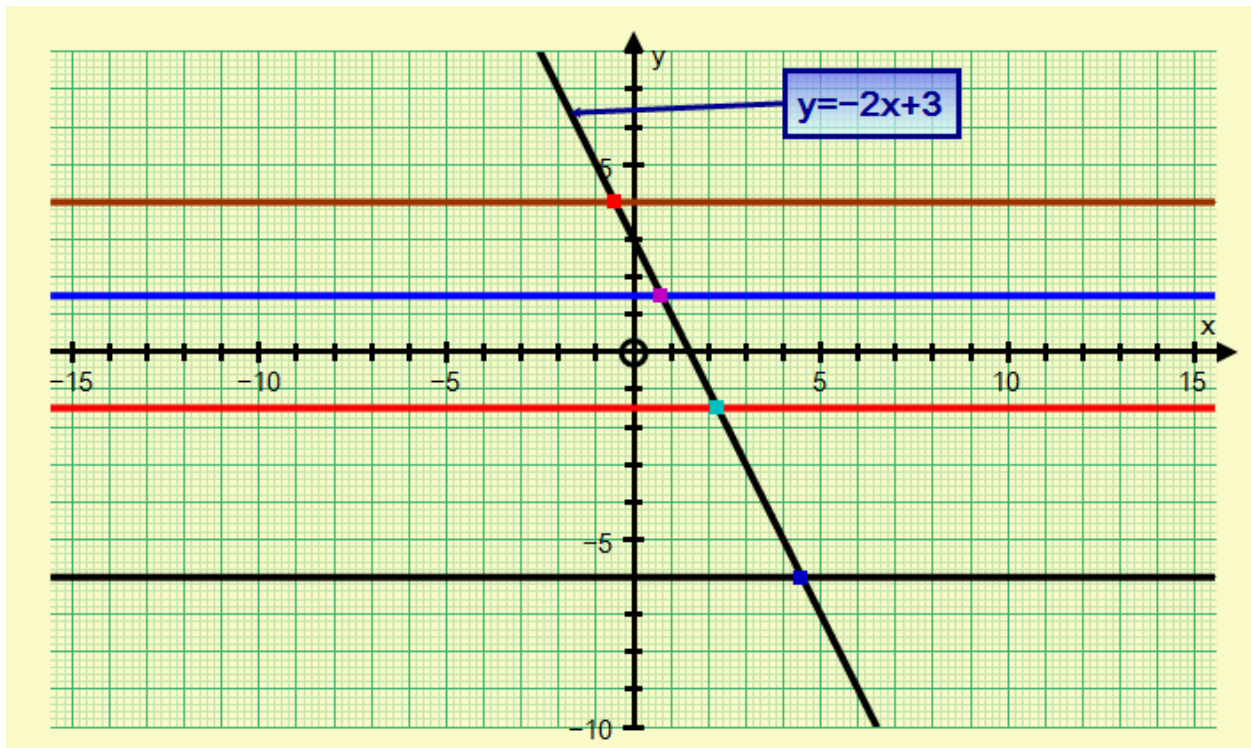


5. (a) Complete the table of values below and draw the graph of $y = -2x + 3$.

Some y-values have been done for you.

x	-2	-1	0	1	2	3
y	7	5	3	1	-1	-3

- (b) (i) approx. $x = -0.5$ (ii) approx. $x = 0.8$
(iii) approx. $x = 4.5$ (iv) approx. $x = 2.5$



I hope you find this useful. If you find any errors, please let me know. Part 2 is coming soon.