



Equation of a straight line

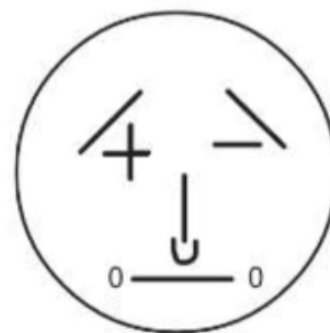
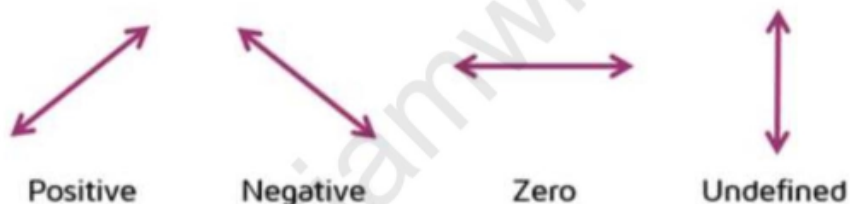
$$y = mx + c$$

y is the subject of the equation m is the gradient c is the y-intercept

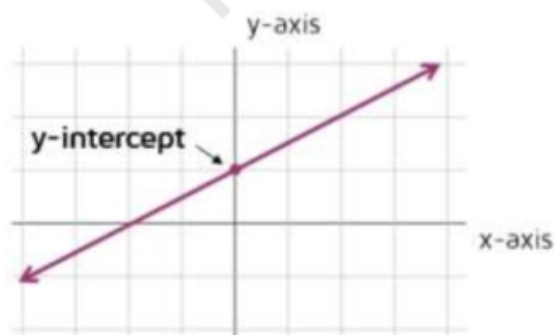
Gradient = $m = \frac{\text{rise}}{\text{run}}$



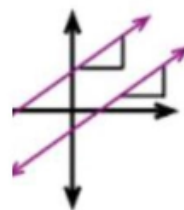
Types of Slopes



y- intercept (c) :- where graph crosses y-axis

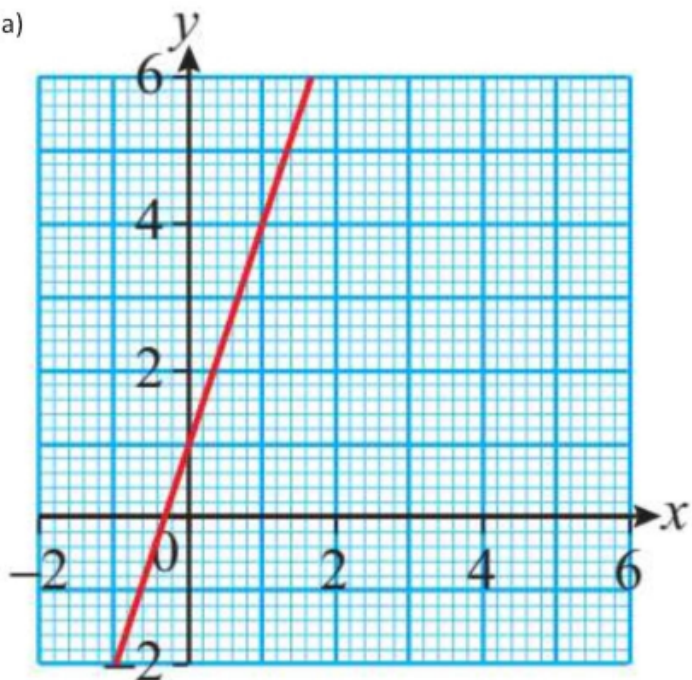


Parallel Lines (equal slopes)

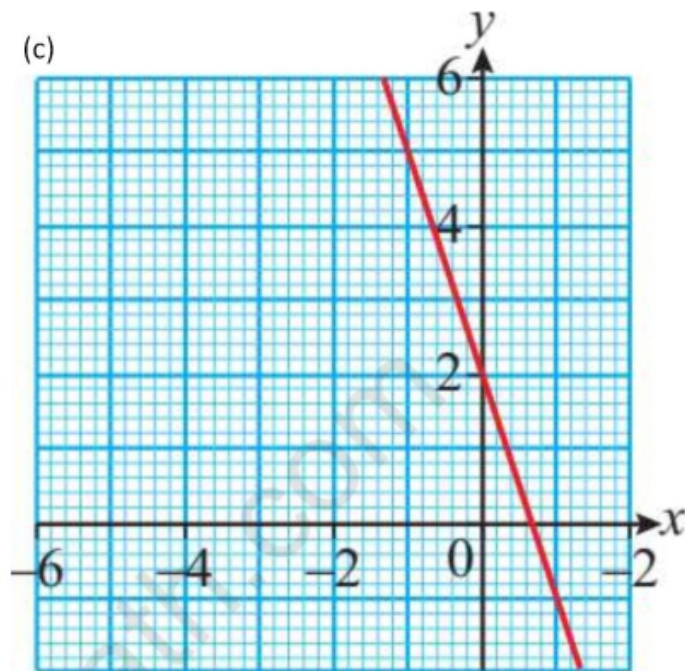


1. For each of the following lines state the gradient and equation in the form $y = mx + c$.

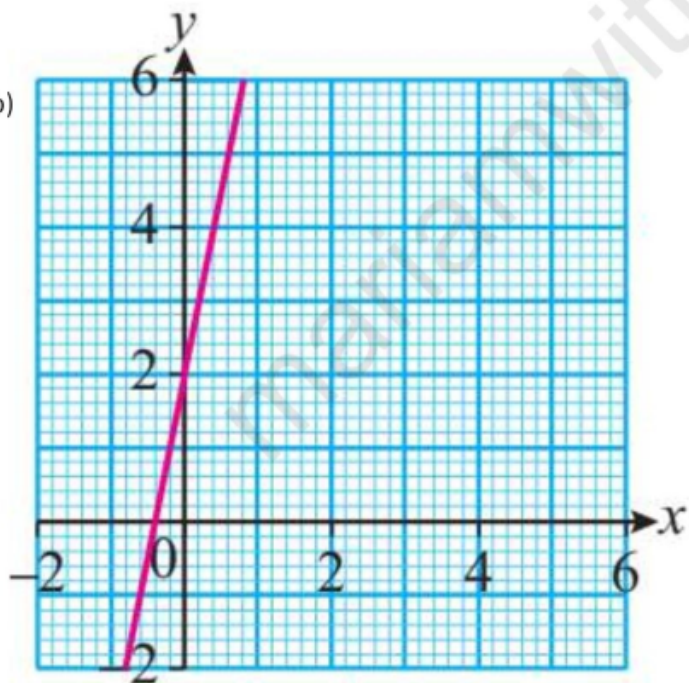
(a)



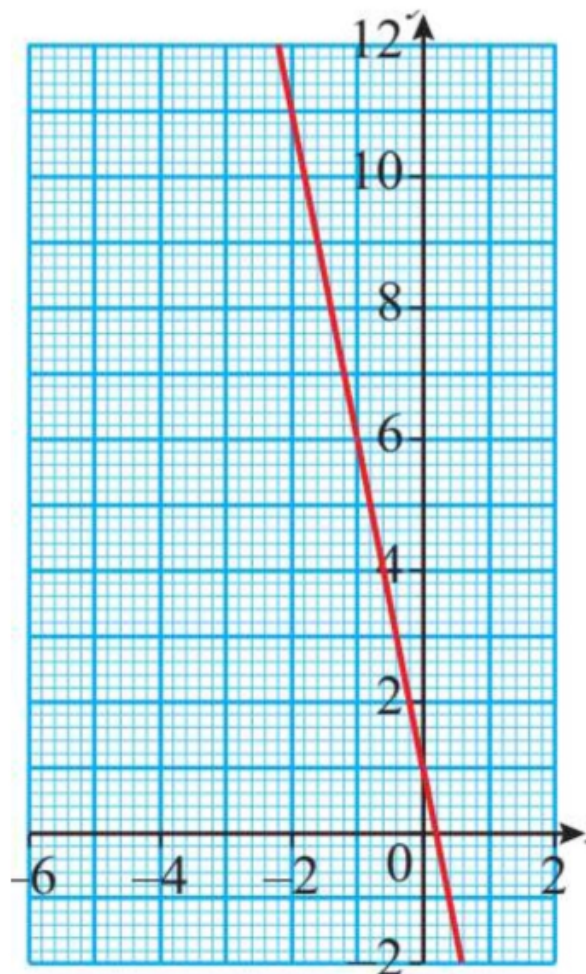
(c)



(b)

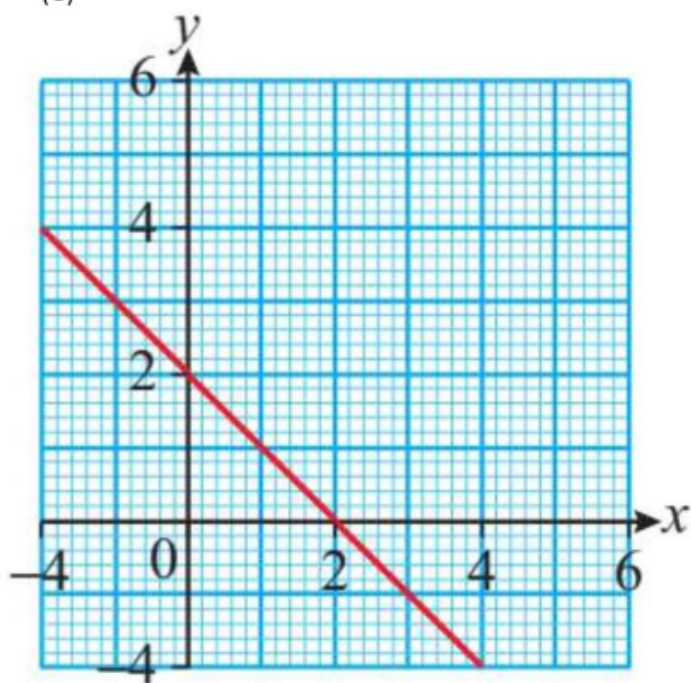


(d)

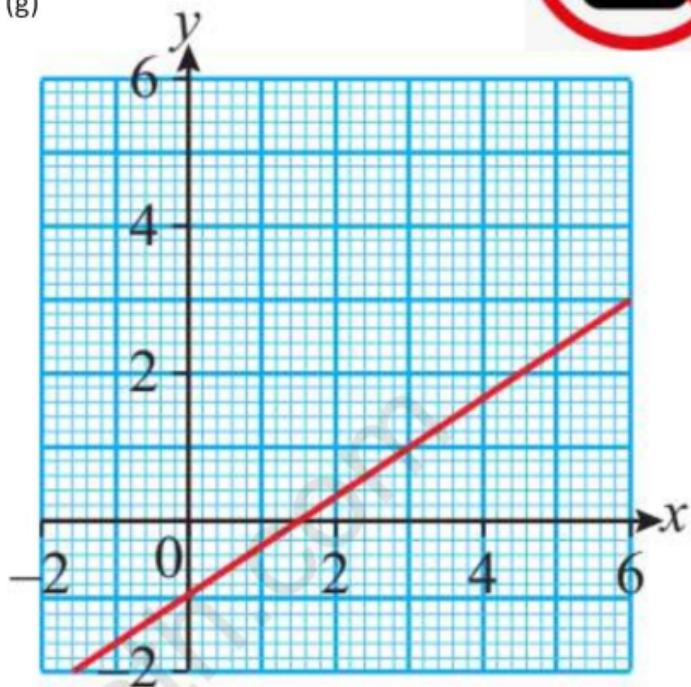




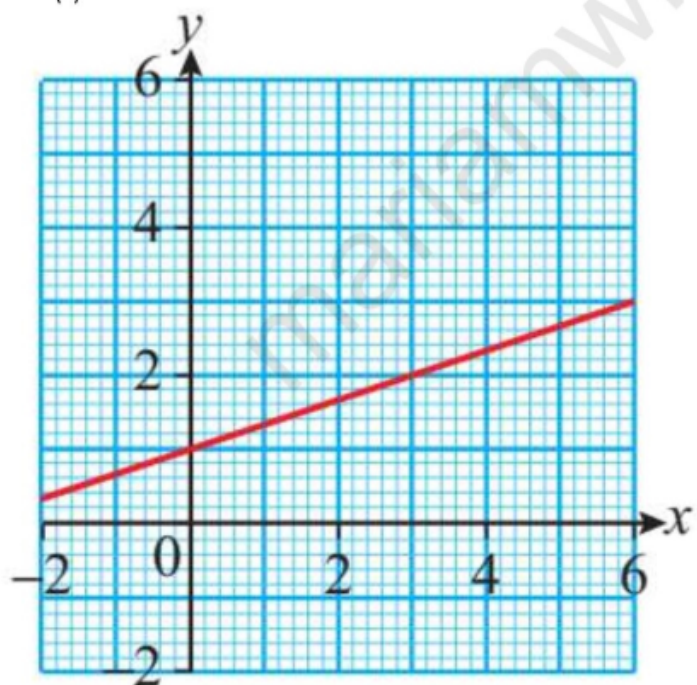
(e)



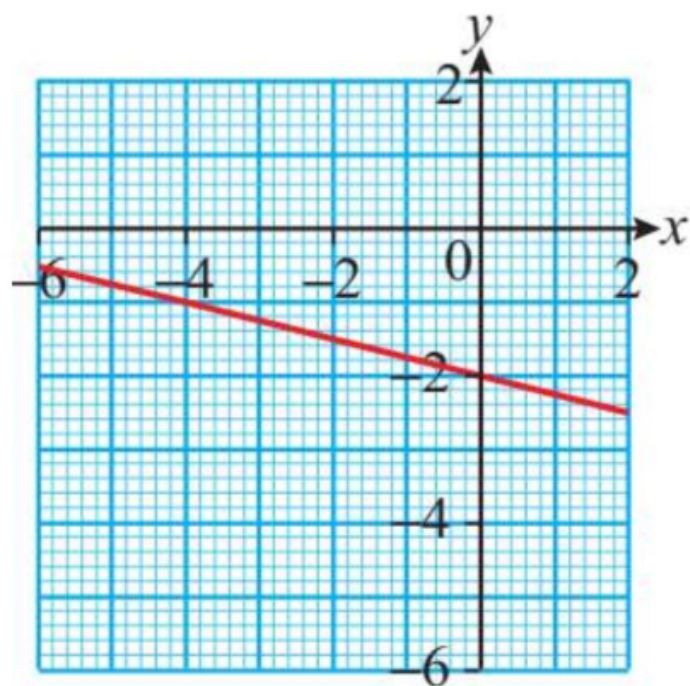
(g)



(f)



(h)





2. State the gradient and y -intercept of the lines with the following equations.

(a) $y = 5x - 3$

(b) $y = 6 - \frac{1}{4}x$

(c) $x + y = 4$

(d) $x + 2y = 4$

(e) $x + \frac{y}{2} = 3$

(f) $2x - 3y = -9$

(g) $\frac{x}{2} - 4y = 12$

(h) $\frac{-y}{3} = 4x - 2$

3. Write equation of lines parallel to the given lines and with given y -intercept.

(a) $y = 2x + 1$ passing through $(0, 5)$

(b) $y = \frac{1}{2}x + 1$ passing through $(0, -1)$

(c) $2y + 6x = 5$ passing through $(0, 4)$

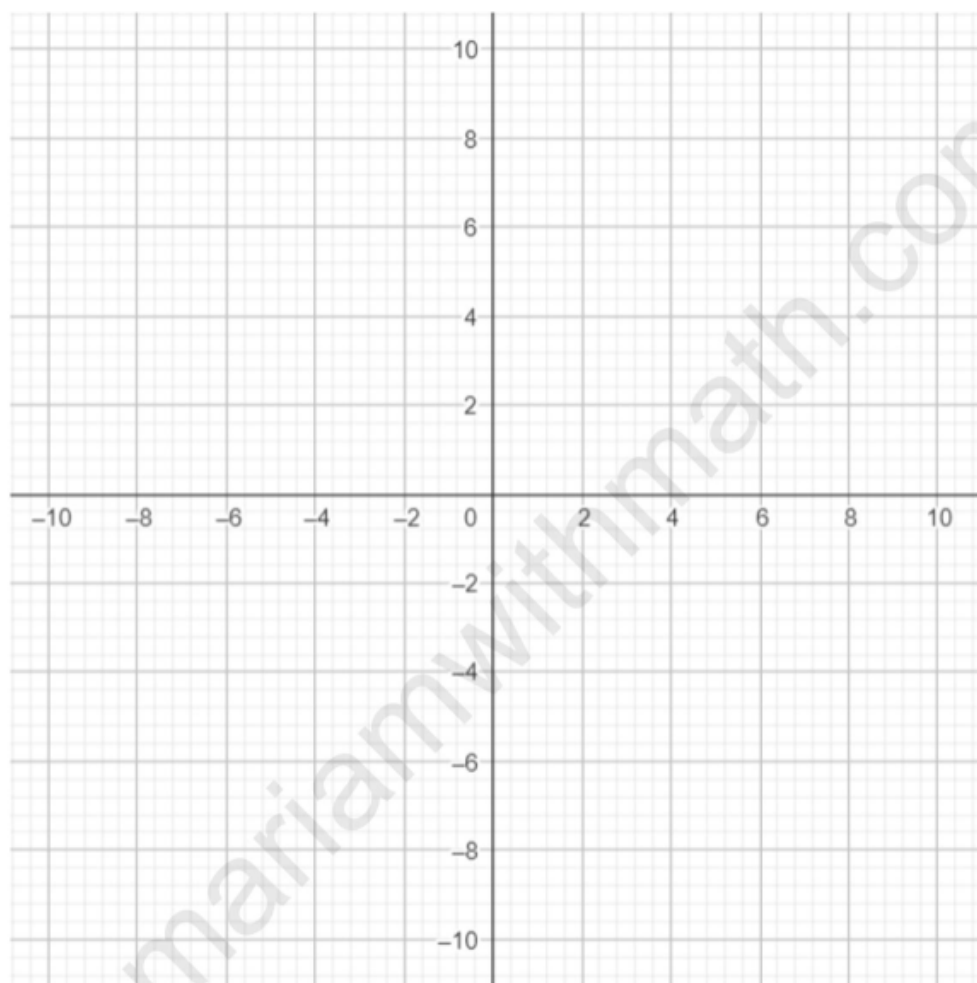
(d) $2x - \frac{1}{4}y = 1$ passing through $(0, -2)$



4. Plot the graphs of the following lines on the grid provided.

(a) $x = 2$ (b) $y = -10$ (c) $x = -8$ (d) $y = 5$ (e) $x = 0$ (f) $y = 0$

(g) $x = -7$ (h) $y = 3$ (i) $x = 9$ (j) $y = -6$

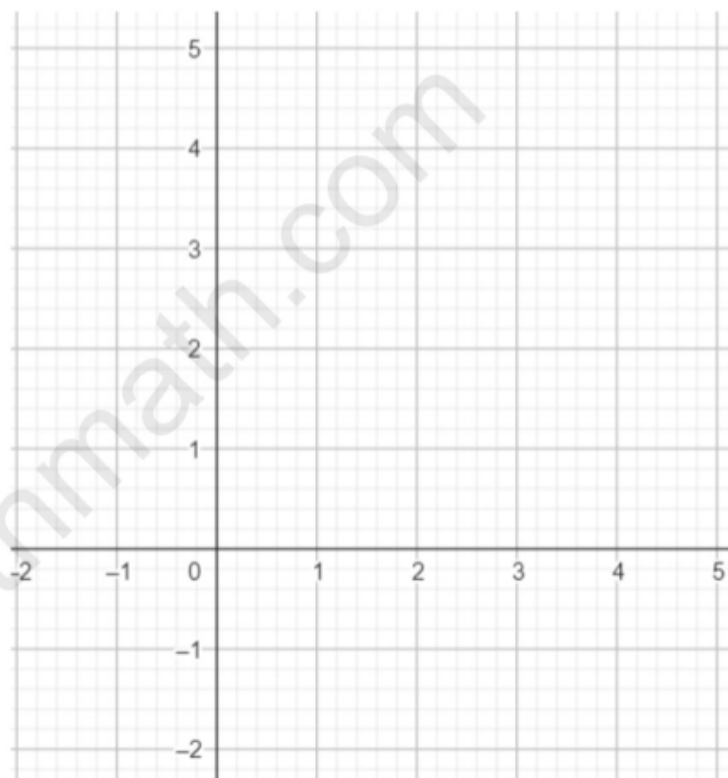
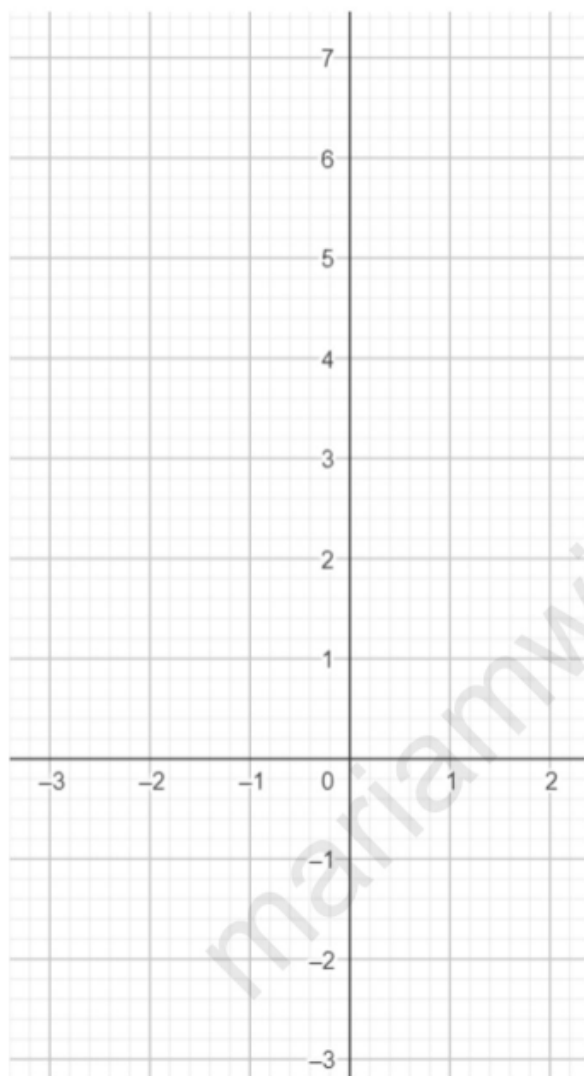




5. Plot the graphs of the following lines on the grids provided.

(a) $y = 2x + 3$

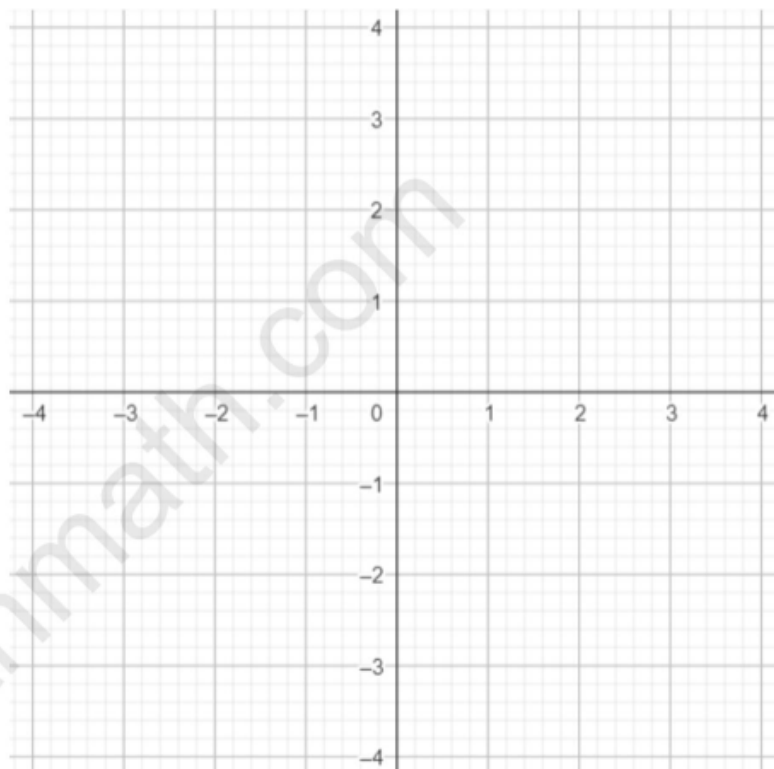
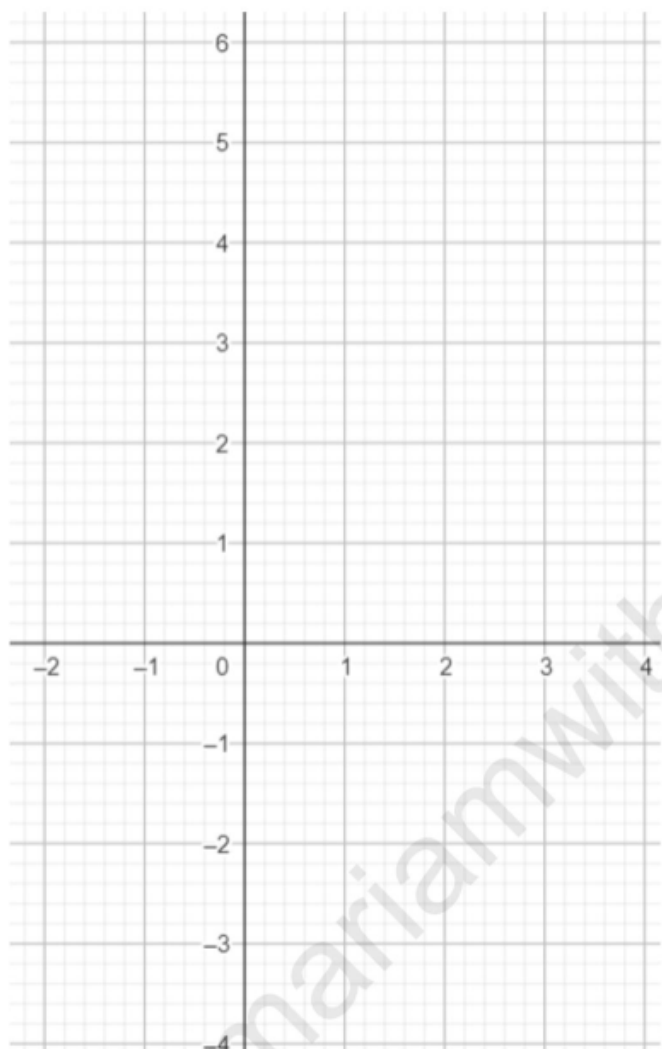
(b) $y = -x + 3$





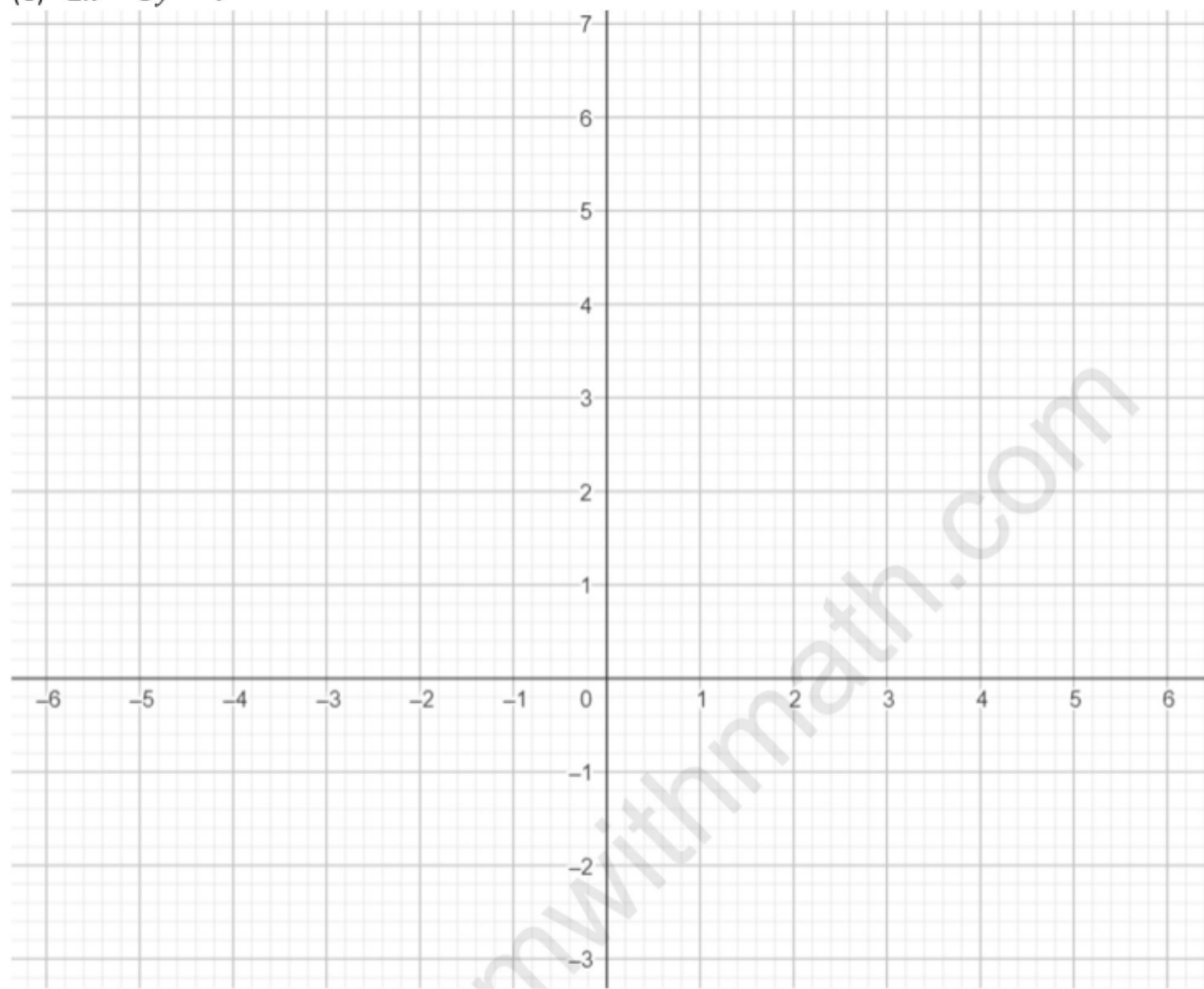
(c) $y = -2x + 4$

(d) $y = \frac{1}{2}x - 3$





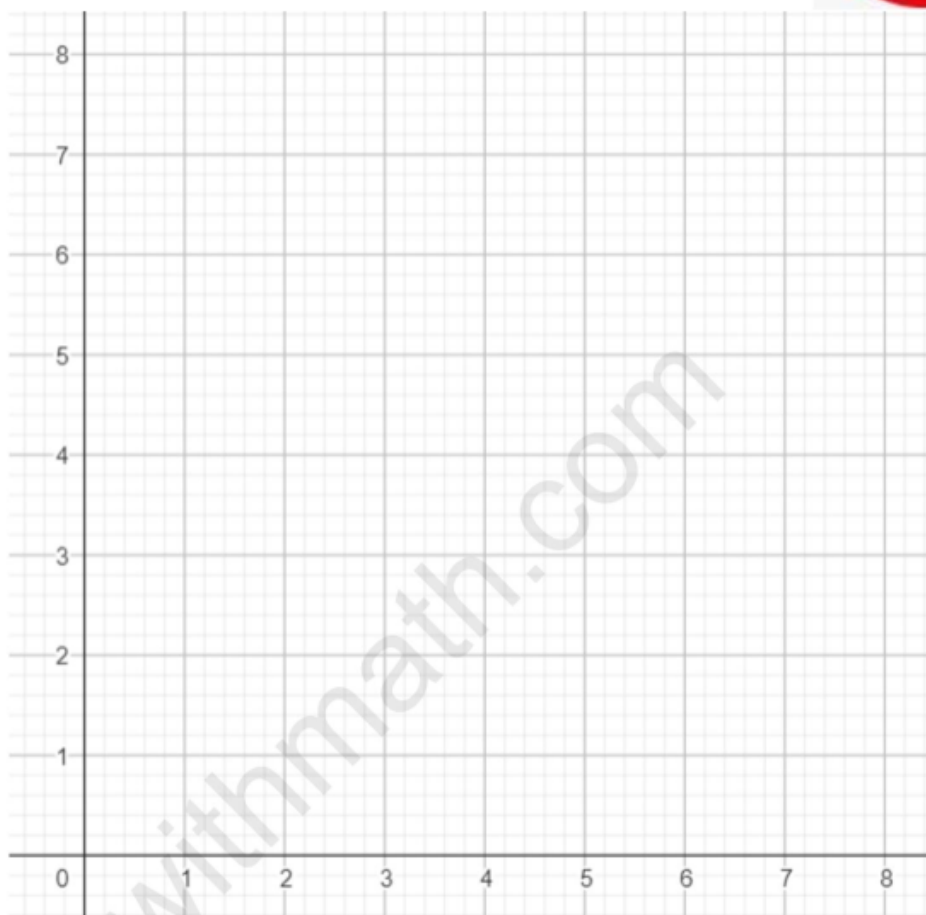
(e) $2x - 3y = 9$



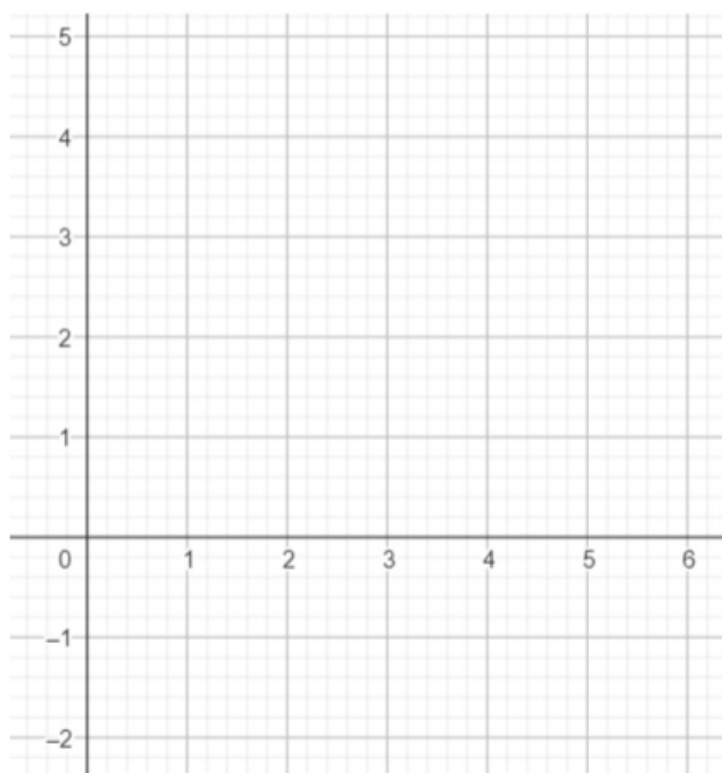


6. Solve the following simultaneous equations graphically

(a) $x + y = 8$
 $2x + y = 13$

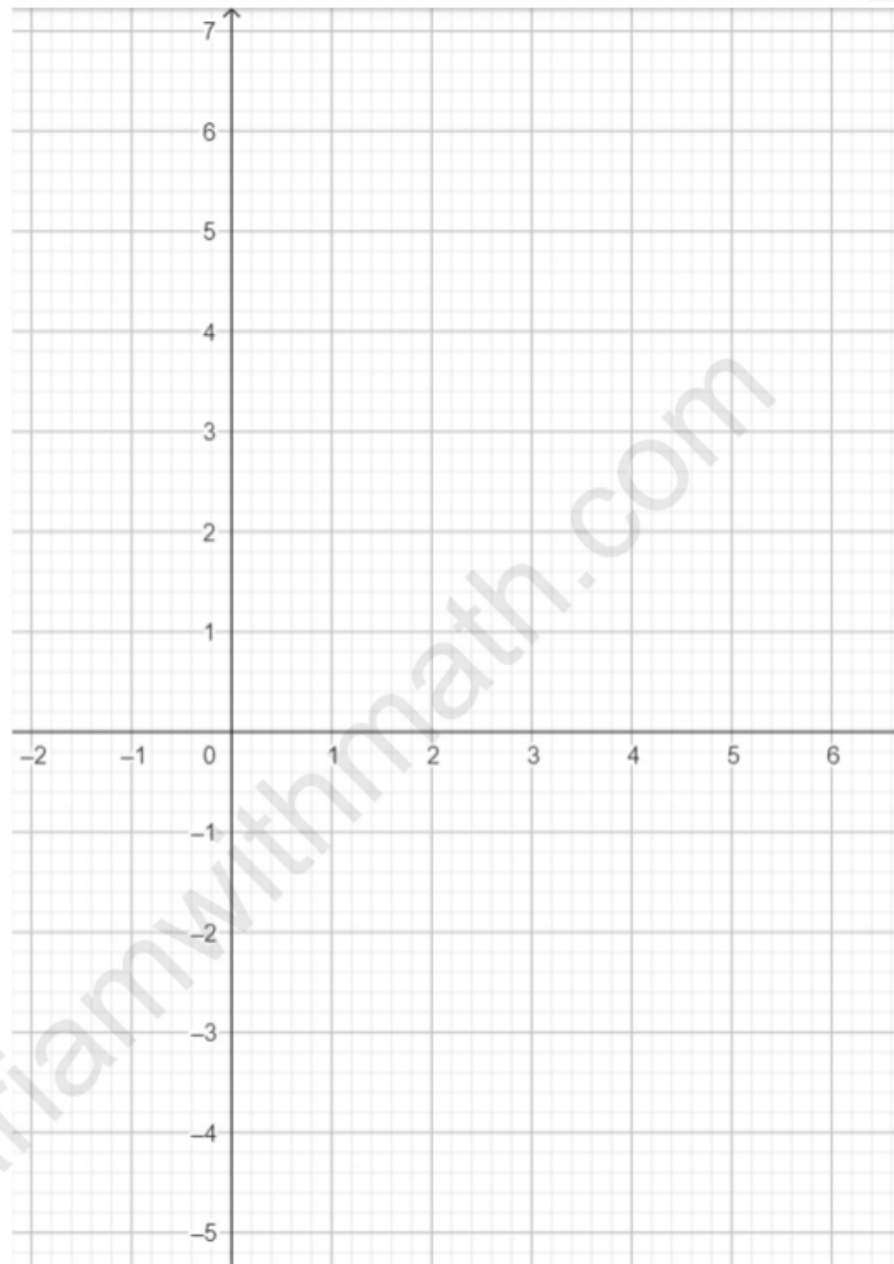


(b) $x - 3y = 6$
 $2x + y = 5$





(c) $y = 4 - 2x$
 $y + 7x + 1 = 0$



Answers 1

- (a) $m = 3, y = 3x + 1$ (b) $m = 5, y = 5x + 2$ (c) $m = -3, y = -3x + 2$
(d) $m = -5, y = -5x + 1$ (e) $m = -1, y = -x + 2$ (f) $m = \frac{1}{3}, y = \frac{1}{3}x + 1$
(g) $m = \frac{2}{3}, y = \frac{2}{3}x - 1$ (h) $m = -\frac{1}{4}, y = -\frac{1}{4}x - 2$

Answer 2

- (a) 5 and -3 (b) $-\frac{1}{4}$ and 6 (c) -1 and 4 (d) $-\frac{1}{2}$ and 2 (e) -2 and 6 (f) $\frac{2}{3}$ and 3
(g) $\frac{1}{8}$ and -3 (h) -12 and 6

Answer 3

- (a) $y = 2x + 5$ (b) $y = \frac{1}{2}x - 1$ (c) $y = -3x + 4$ (d) $y = 8x - 2$

Answer 6

- (a) $x = 5, y = 3$ (b) $x = 3, y = -1$ (c) $x = -1, y = 6$