

Equation of a straight line

$$y = mx + c$$

y is the subject of the equation

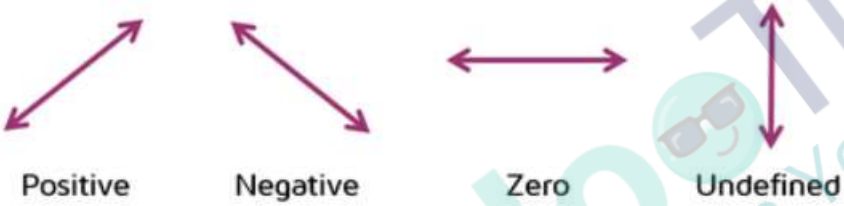
gradient

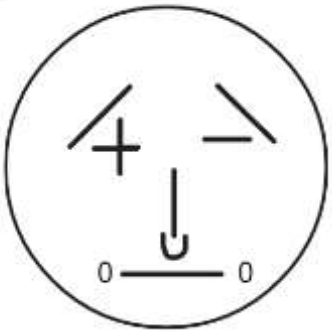
y-intercept

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

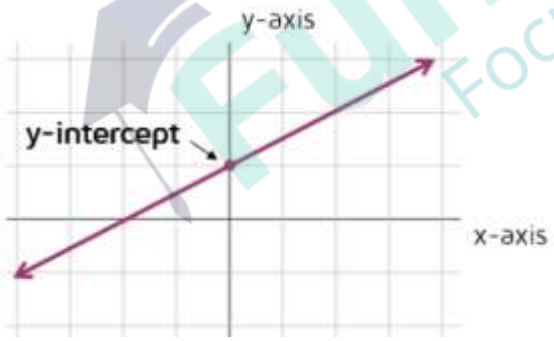


Types of Slopes

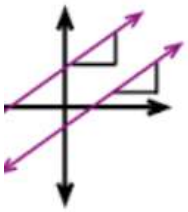




y- intercept (c) :- where graph crosses y-axis



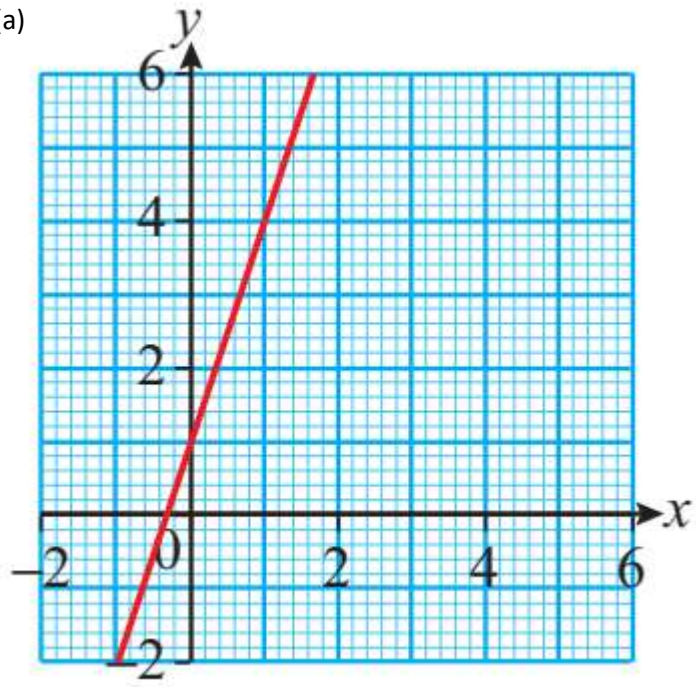
Parallel Lines (equal slopes)



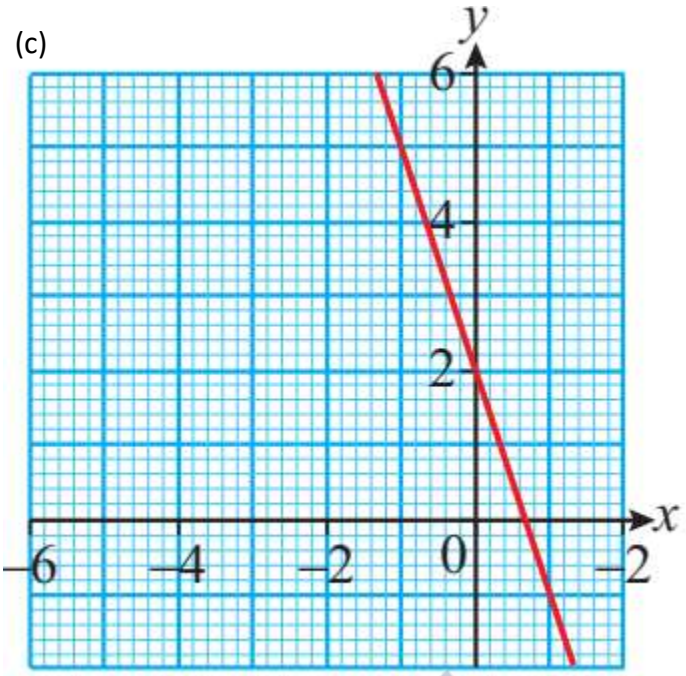
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1. For each of the following lines state the gradient and equation in the form $y = mx + c$.

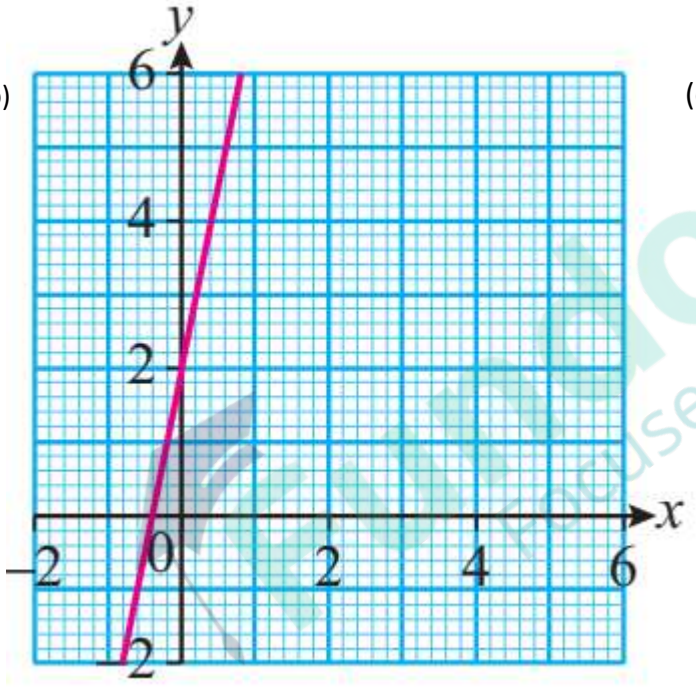
(a)



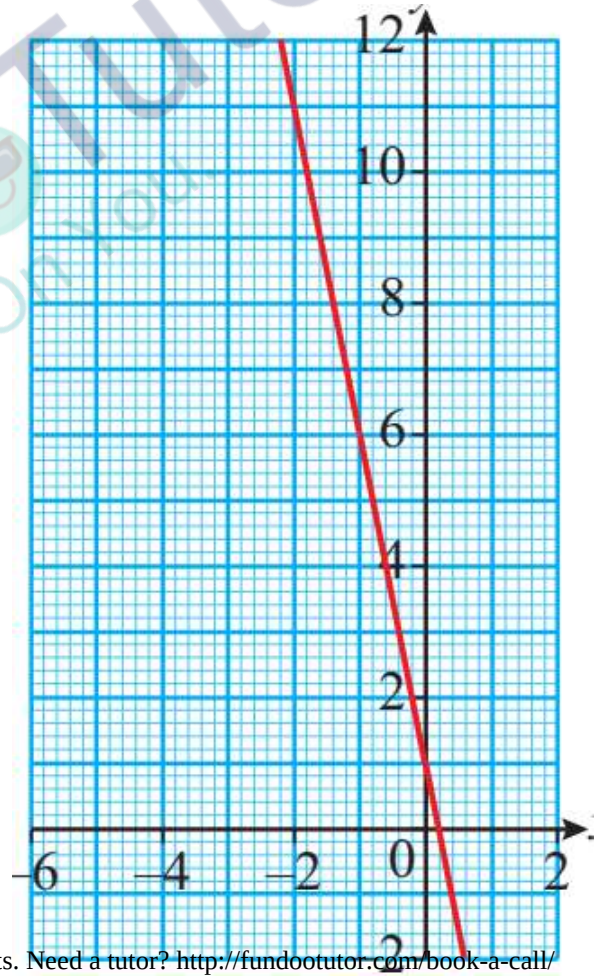
(c)



(b)



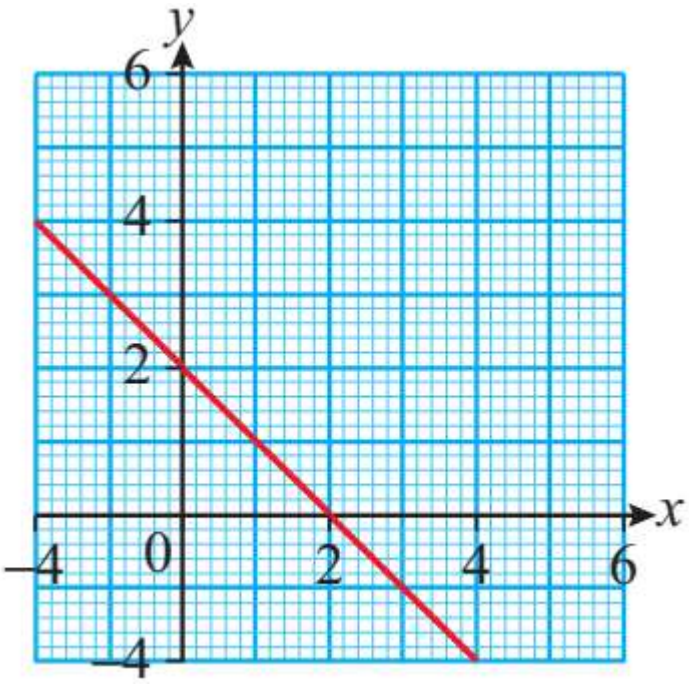
(d)



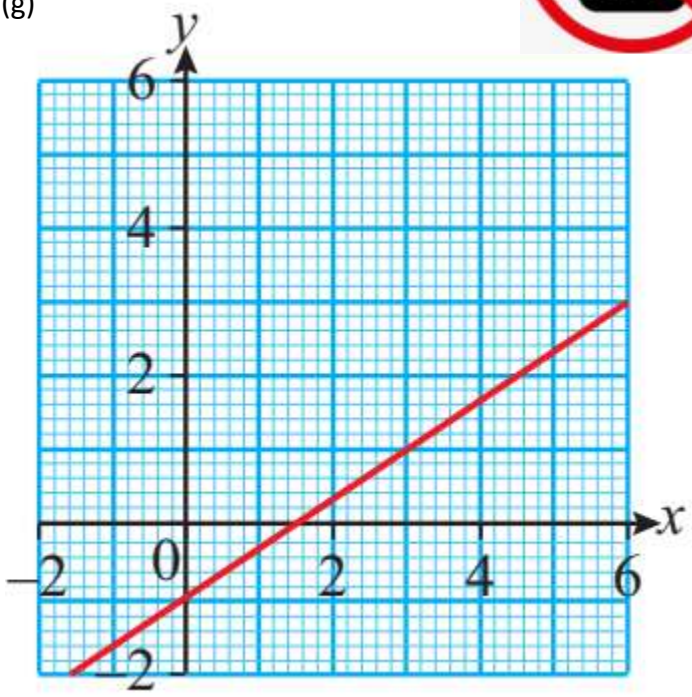
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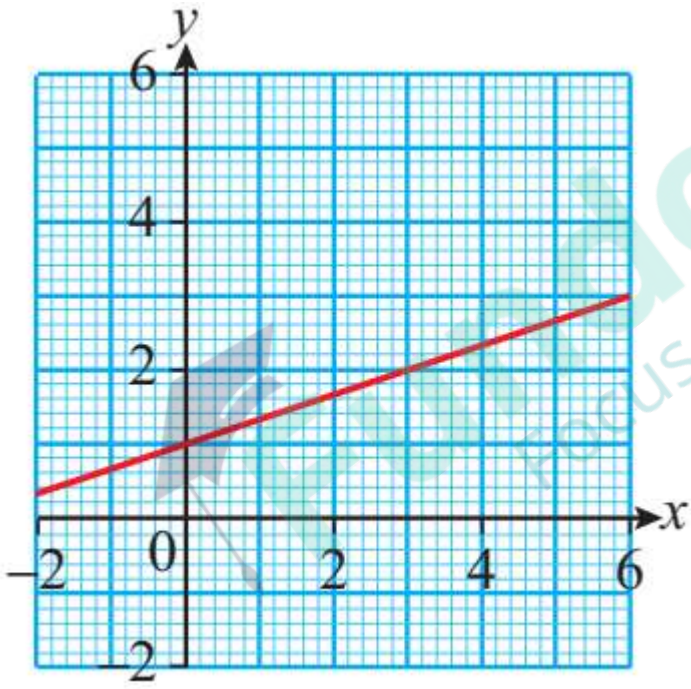
(e)



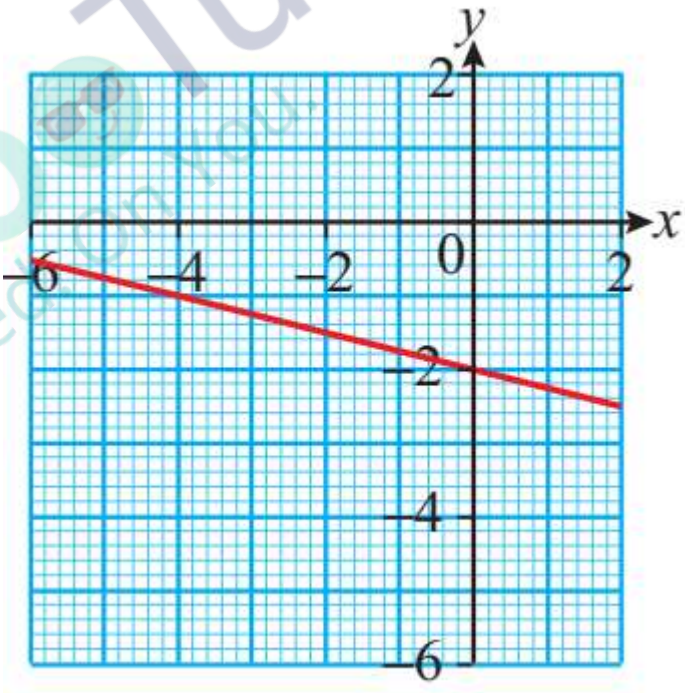
(g)



(f)



(h)



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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)

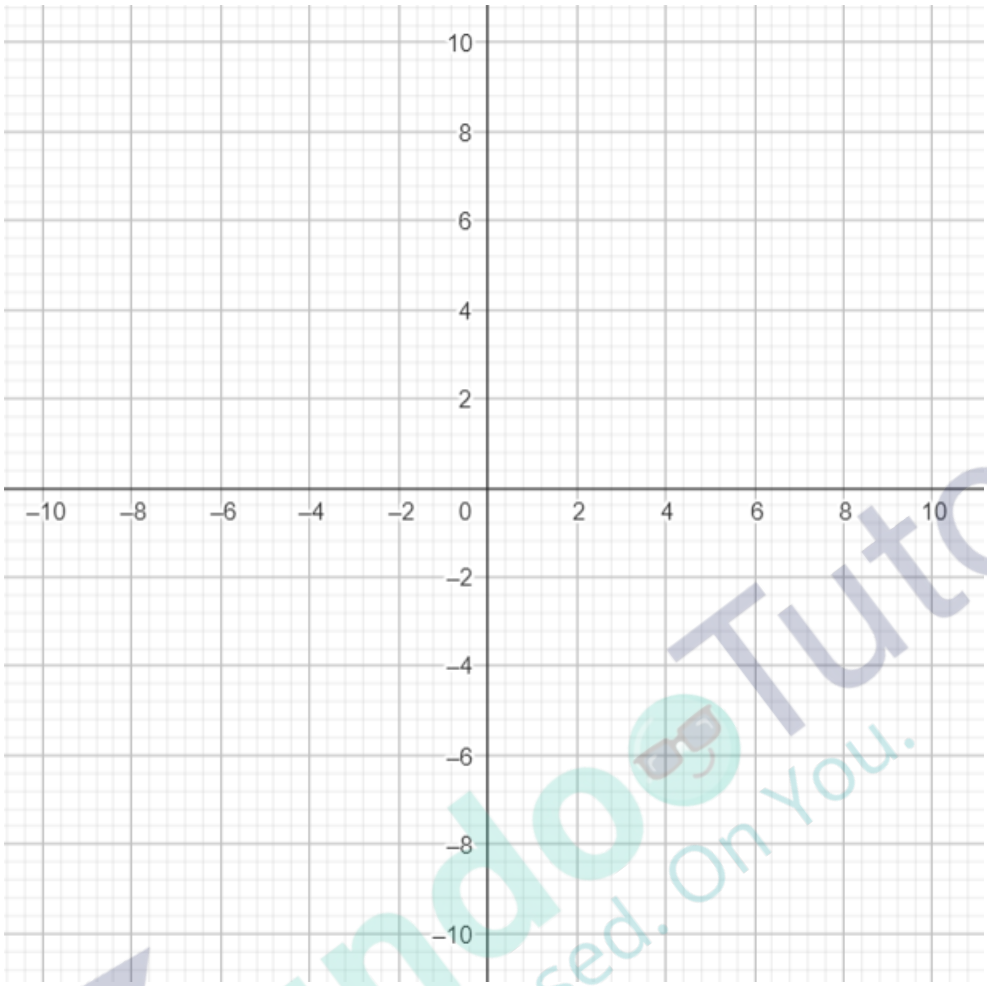
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4. Plot the graphs of the following lines on the grid provided.

(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) $y = -6$



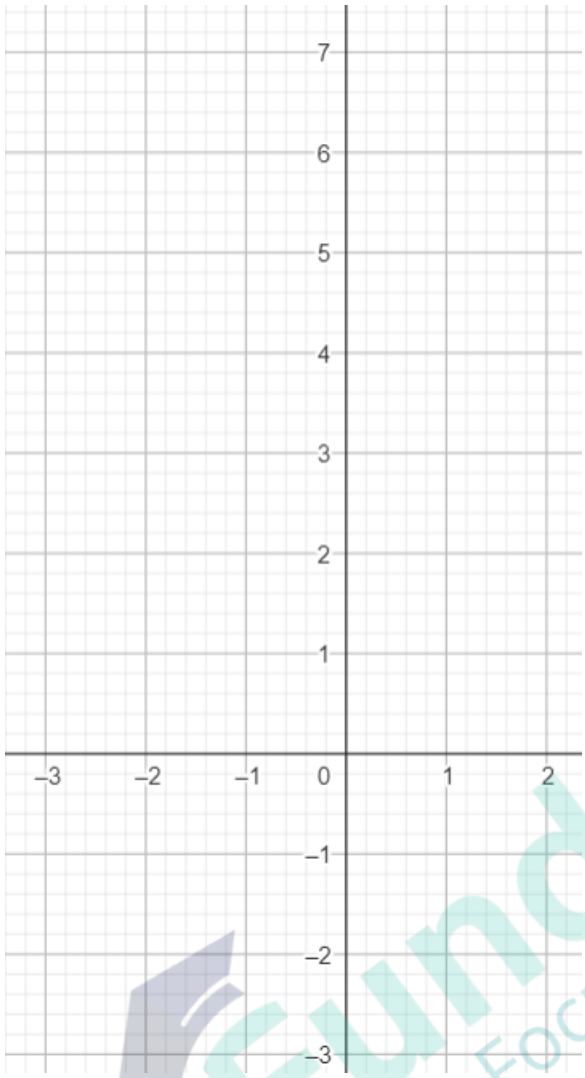
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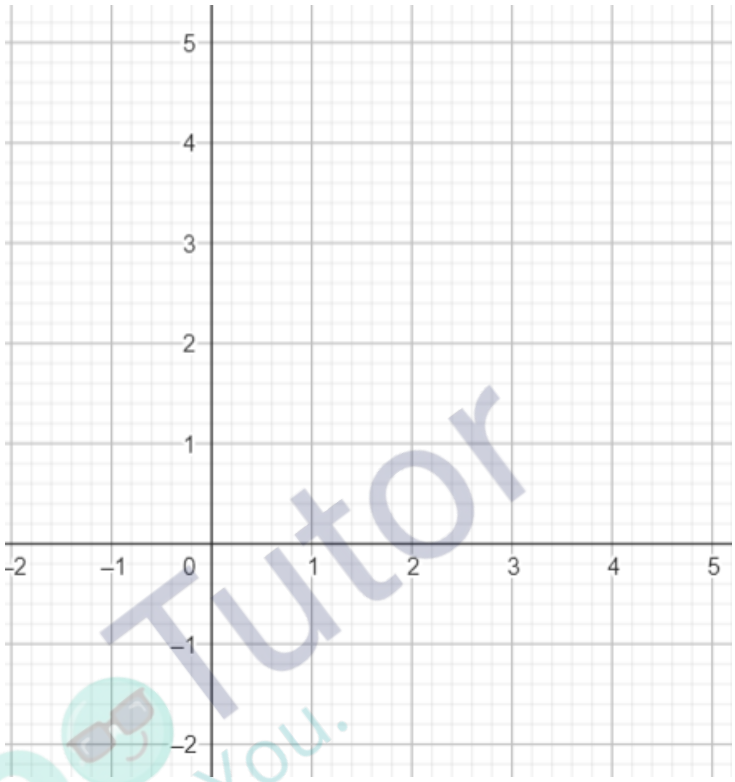


5. Plot the graphs of the following lines on the grids provided.

(a) $y = 2x + 3$



(b) $y = -x + 3$

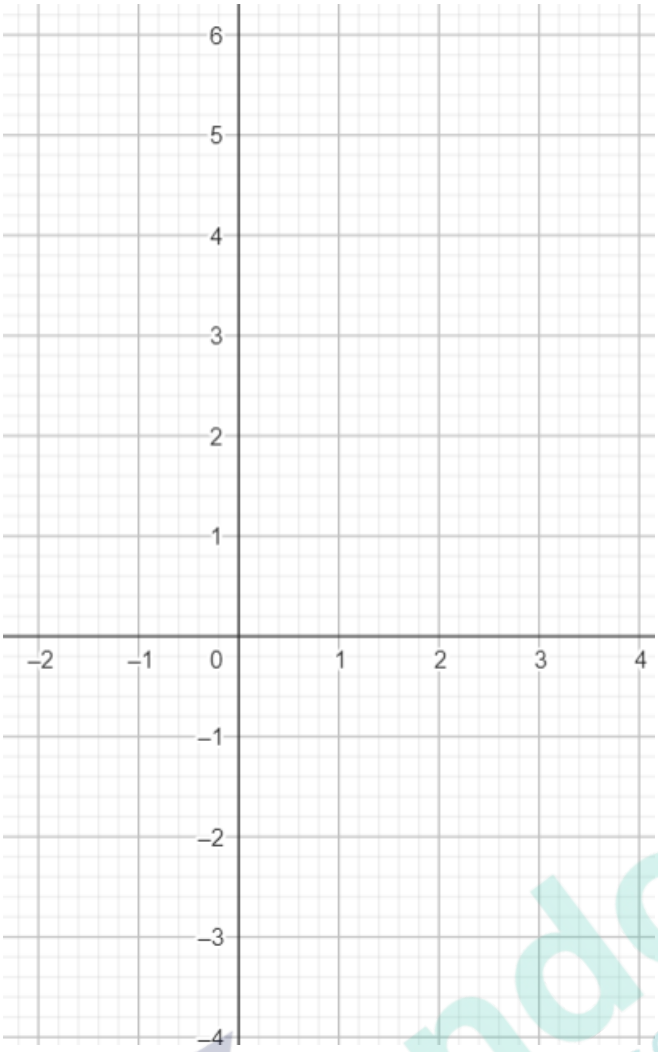


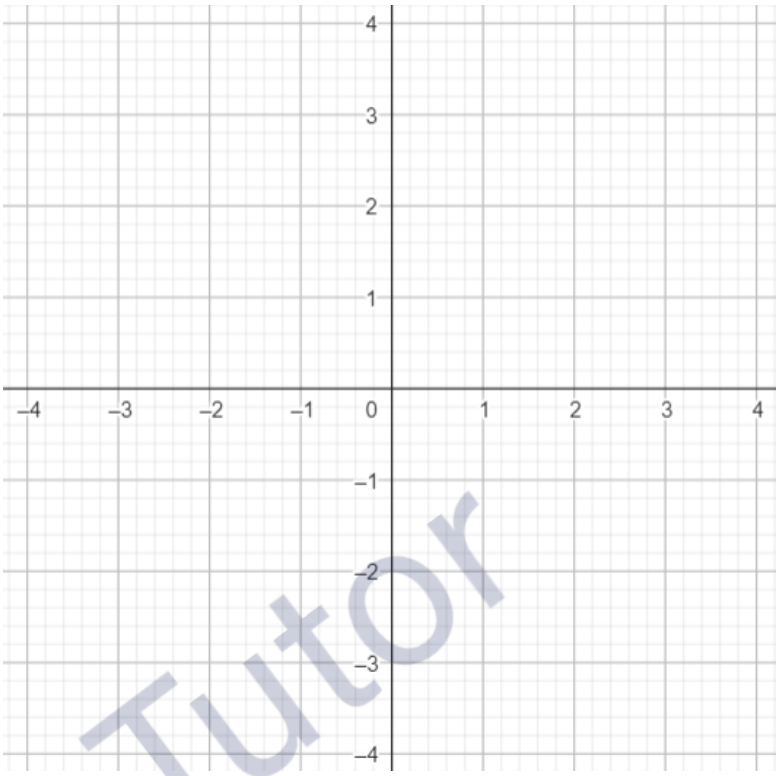
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(c) $y = -2x + 4$

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



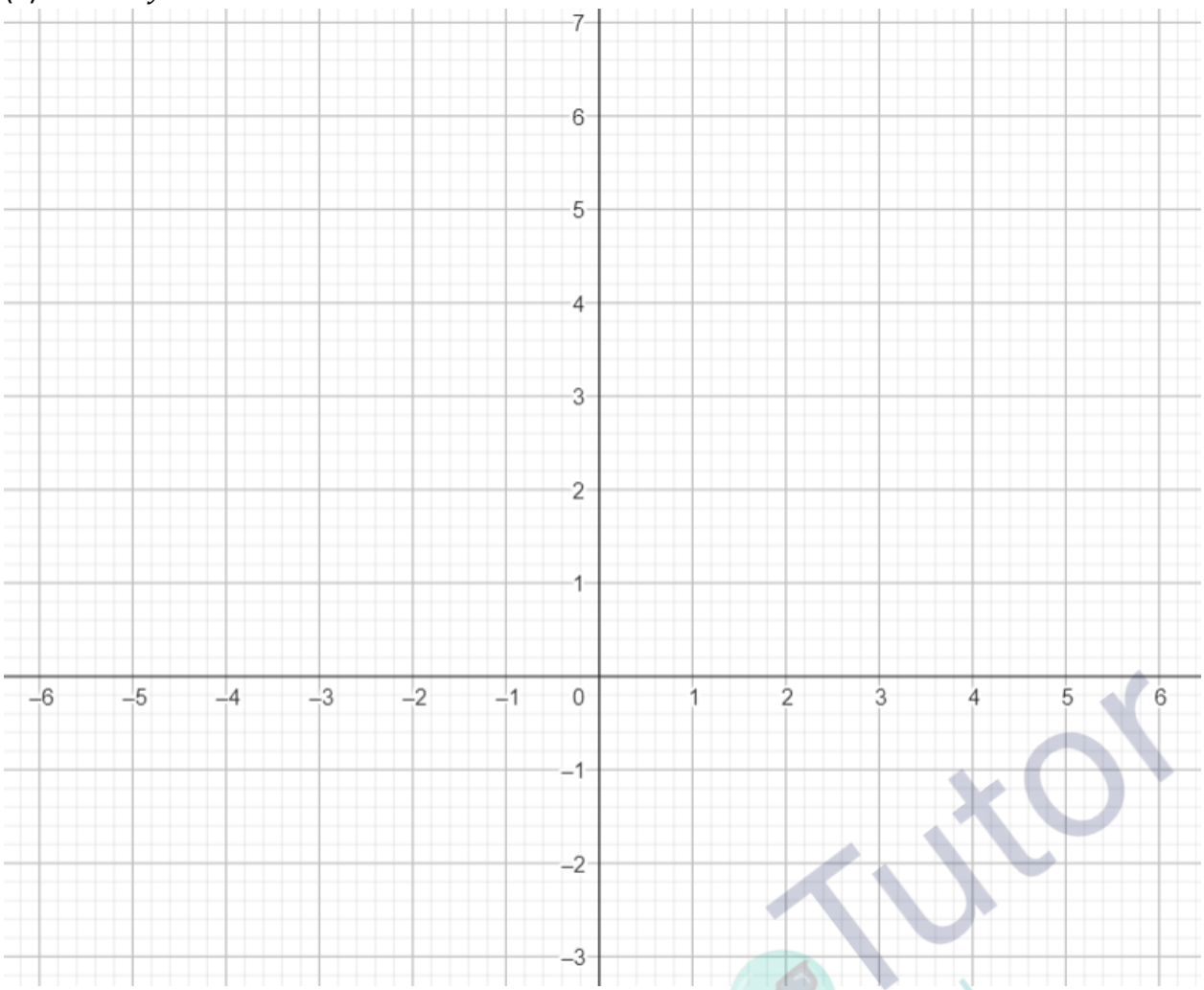


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(e) $2x - 3y = 9$

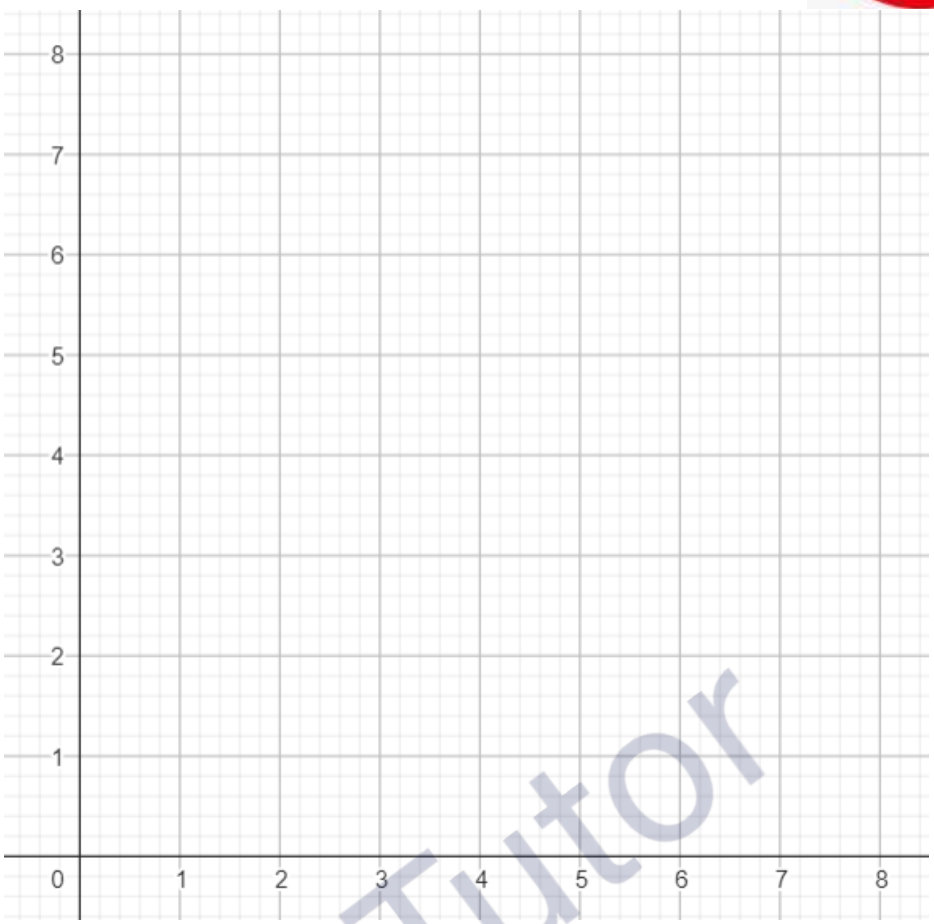


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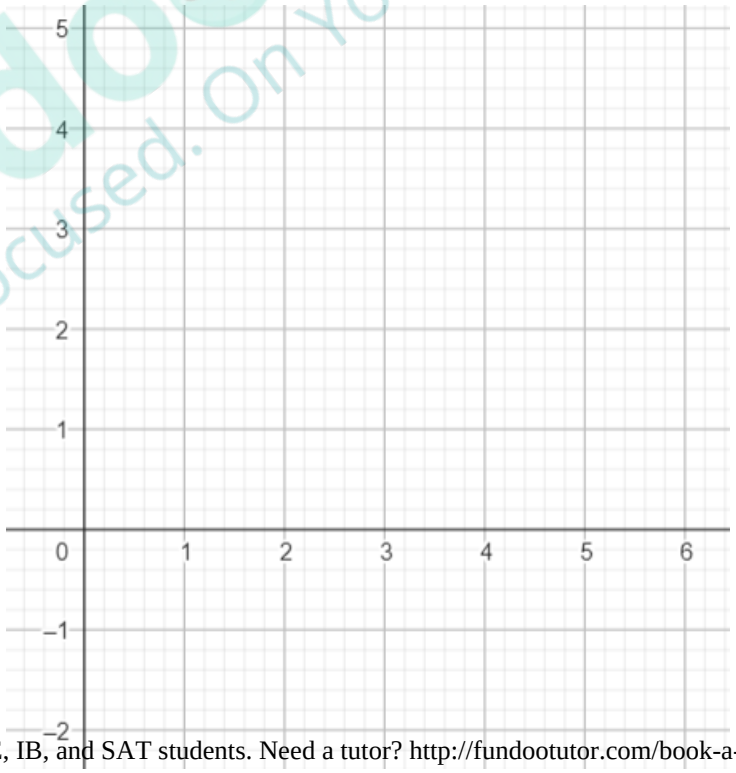


6. Solve the following simultaneous equations graphically

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



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

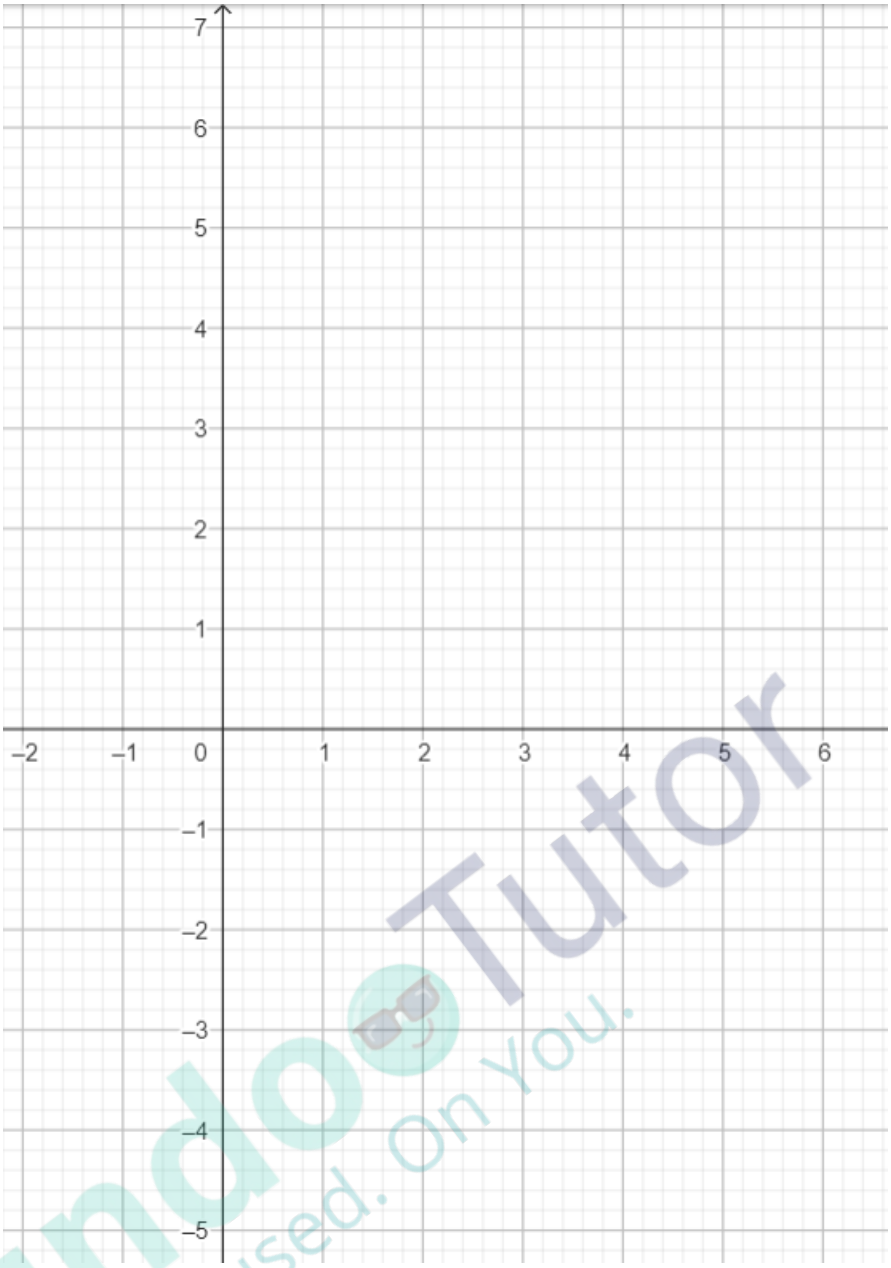


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(c) $y = 4 - 2x$

$y + 7x + 1 = 0$



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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) $x = -1 , y = 6$

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