

Review for the third exam

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Disclaimer The following is a set of questions to help you review what we have covered in class, after the second exam. The third exam will also contain some topics that were covered in the first two exams, the reviews for these parts are here: [Review for the first exam](#), and [Review for the second exam](#).

If you know how to answer these questions then you should do well in the exam. However there is no guarantee that the questions in the actual exam will be perceived to be similar to these questions.

1. Consider the following equation:

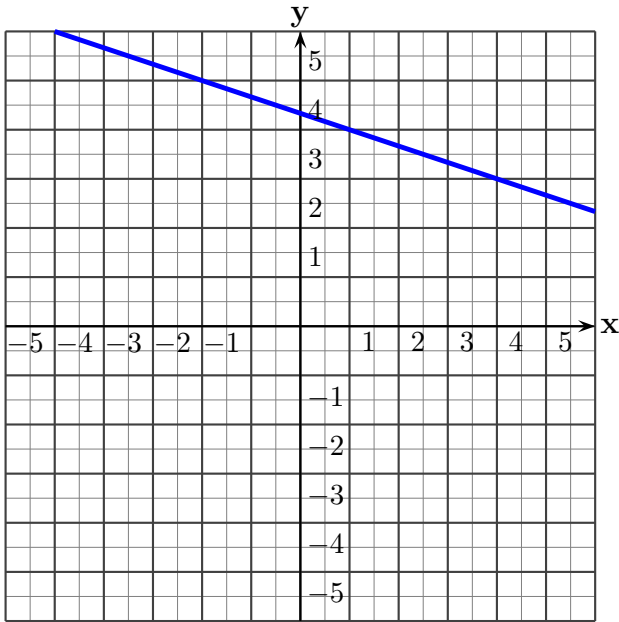
$$6x - 5y = 30$$

- (a) Complete the following table of solutions of this equation:

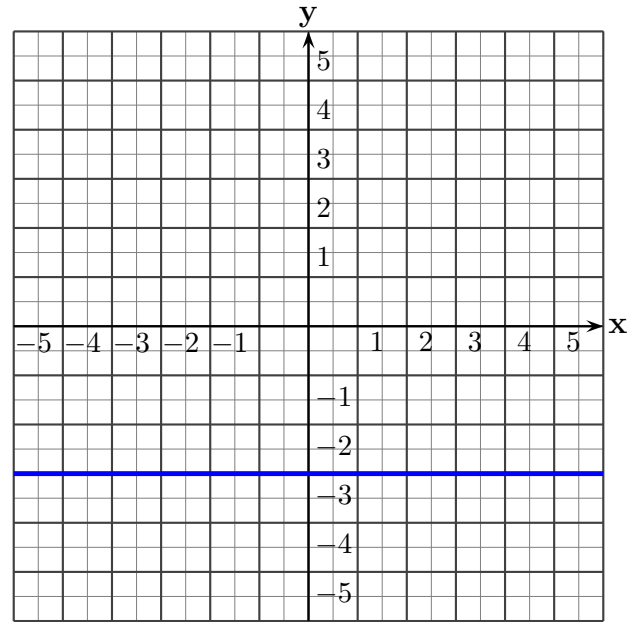
x	y
0	
	0
1	
-1	
	1

- (b) The second coordinate of a solution to this equation equals twice the first coordinate. Find that solution.
- (c) There are two solutions to this equation with coordinates that are consecutive integers. Find those solutions.
2. Find five solutions for each of the equations:
- (a) $-3x + 2y = 6$
- (b) $2x - 5y = -3$
- (c) $y = \frac{2x}{3} - 7$

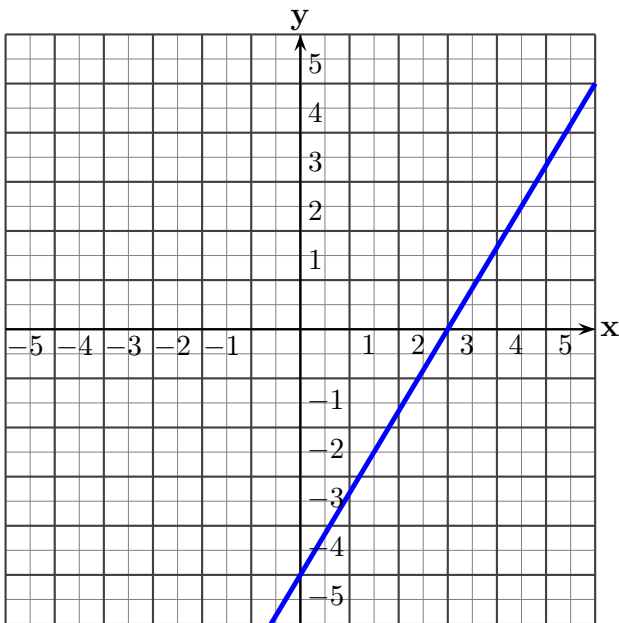
3. Find the slope for each of the lines whose graph is shown below:



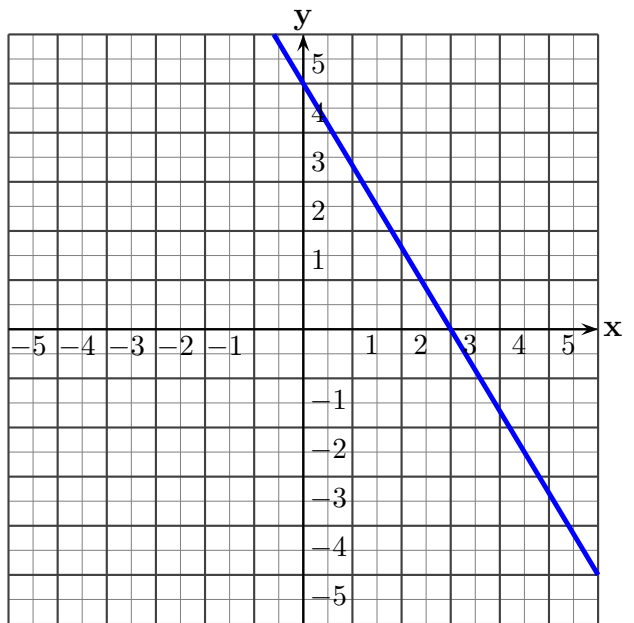
A



B



C

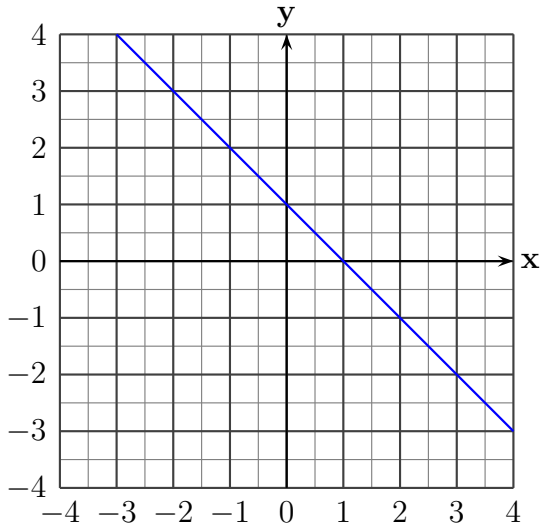


D

4. Find an equation for each of the lines of the previous question.

5. Graph each of the following equations:
- (a) $x + y = 2$
 - (b) $3x + 2y = 6$
 - (c) $-2x + 5y = -10$
 - (d) $y = -\frac{3}{4}x + 5$
 - (e) $x = 3$
 - (f) $y = -3$
6. Find the slope and the x - and y -intercepts of the line with equation
- (a) $2x - 5y = 20$
 - (b) $3x - 2y = 7$
 - (c) $-3x + 4y = 12$
 - (d) $3x + 7y = -42$
 - (e) $-x + 2y = -3$
 - (f) $-3x + 5y = 30$
7. A line has slope $\frac{2}{3}$ and passes through the point $(0, -4)$. Find its equation.
8. A line has slope -3 and passes through the point $(1, 7)$. Find its equation.
9. A line passes through the points with coordinates $(2, -3)$ and $(-1, 3)$. Find its equation.
10. A line passes through the points with coordinates $(0, 2)$ and $(-2, 3)$. Find its equation.
11. A vertical line passes through the point $(-1, 3)$. Find its equation.
12. A horizontal line passes through the point $(-6, -7)$. Find its equation.
13. A line is parallel to the line with equation $y = -3x + 6$ and meets the y -axis at the same point as the line with equation $y = 5x - 7$. Find an equation for this line.
14. Find the slope and the y intercept of the graph of the equation $3x + 4y = 8$
- A. slope = $-\frac{3}{4}$ and y -intercept $(0, 2)$
 - B. slope = $\frac{4}{3}$ and y -intercept $(0, 8)$
 - C. slope = $\frac{3}{4}$ and y -intercept $(0, 2)$
 - D. slope = $-\frac{3}{3}$ and y -intercept $(0, 8)$

15. Choose the correct equation for the line whose graph is shown below:



A. $x - y = 1$

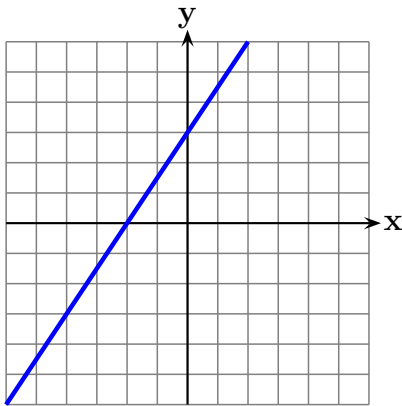
B. $x + y = 1$

C. $x + y = -1$

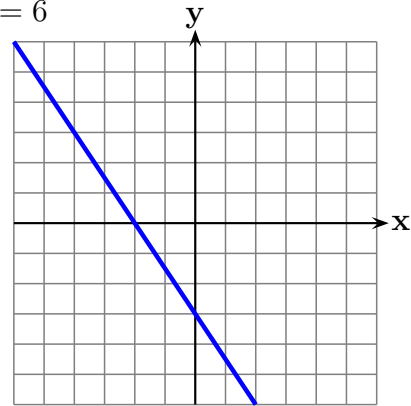
D. $x - y = -1$

16. Which of the following is the graph of the equation?

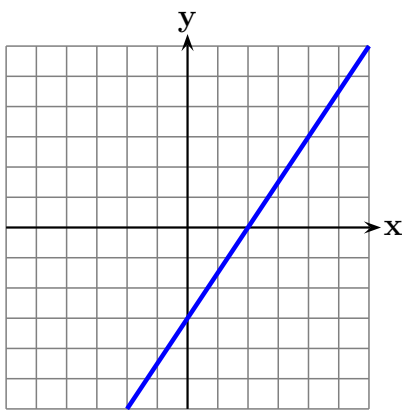
$3x - 2y = 6$



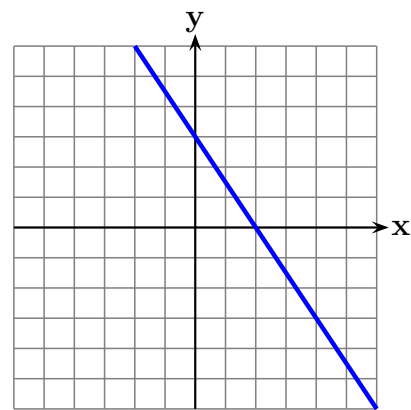
(A)



(B)



(C)



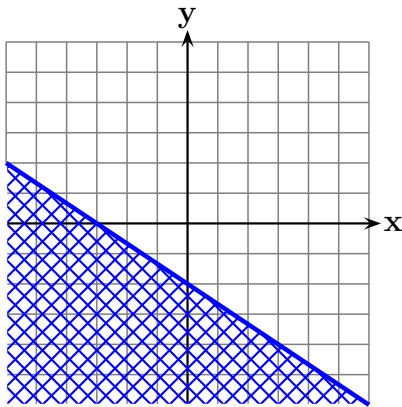
(D)

17. Graph the solution set of each of the following inequalities:

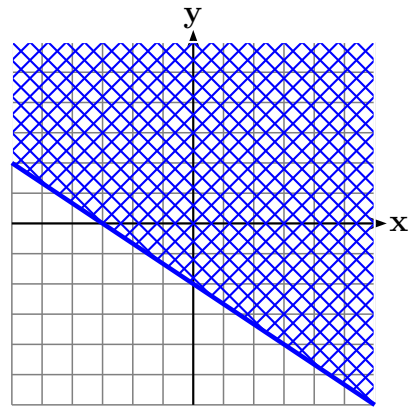
- (a) $3x - 2y \geq 6$
- (b) $y - \frac{3x}{2} < 4$
- (c) $y \leq 2x - 1$
- (d) $y < 1$
- (e) $4x - 3y \leq 12$
- (f) $5x > -2y + 10$
- (g) $x \geq -2$

18. Match the inequalities with their graphs:

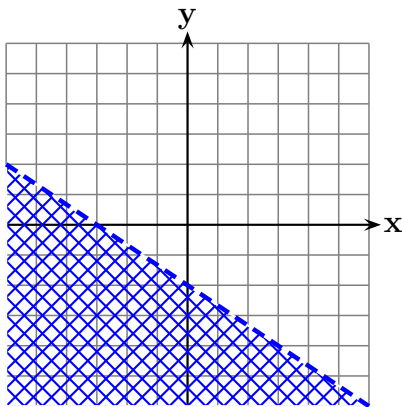
- (a) $2x + 3y \geq -2$
- (b) $2x + 3y < -2$
- (c) $2x + 3y \leq -2$
- (d) $2x + 3y > -2$



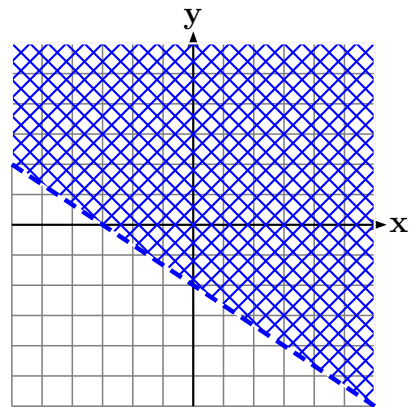
(A)



(B)



(C)



(D)

19. What is the value of the y -coordinate of the solution to the following system of equations?

$$\begin{cases} x + 3y = 2 \\ -3x - 8y = 4 \end{cases}$$

- A. $y = -2$ B. $y = 10$ C. $y = 6$ D. $y = -10$

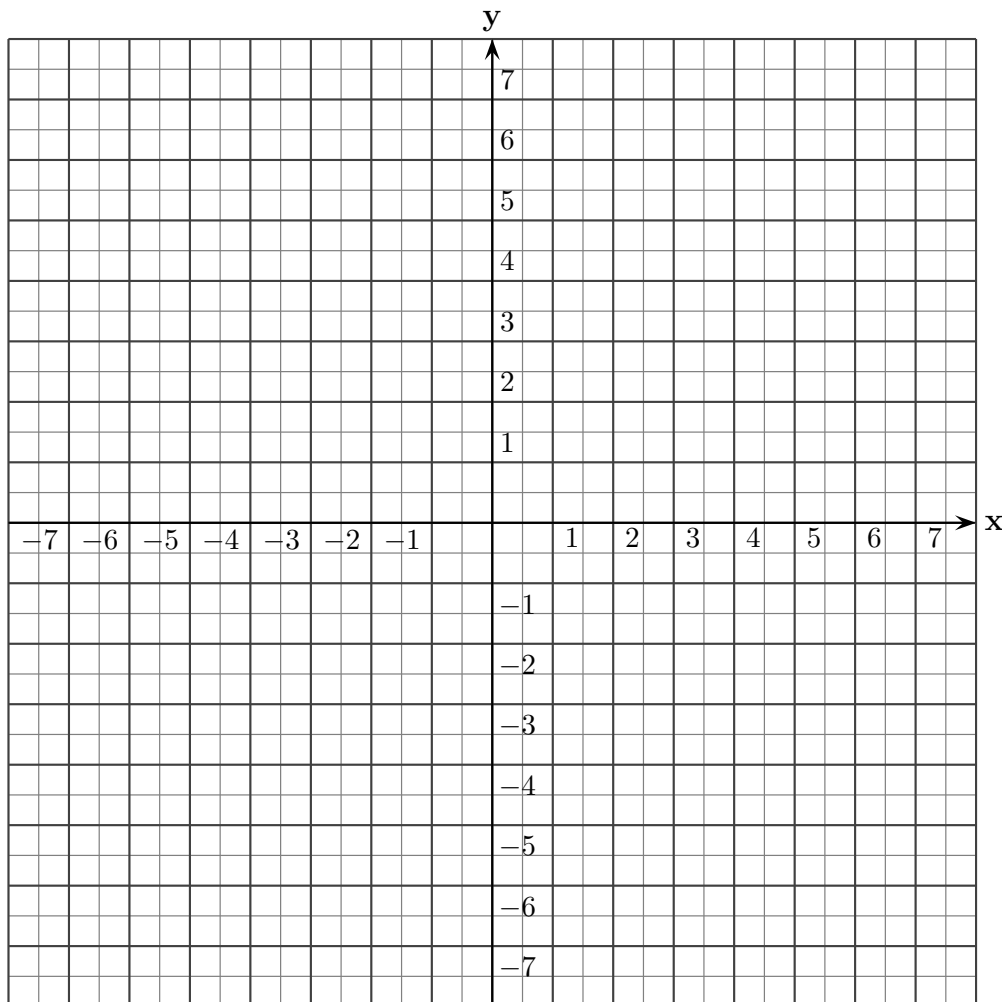
20. What is the value of the x -coordinate of the solution to the following system of equations?

$$\begin{cases} 2x + y = 3 \\ -5x - 2y = 4 \end{cases}$$

- A. $x = 2$ B. $x = -10$ C. $x = 10$ D. $x = -7$

21. Solve the system: $\begin{cases} 2x - 3y = -10 \\ 3x + 2y = -2 \end{cases}$

22. Graph the lines with equations $-3x + 2y = 6$ and $2x - 3y = 6$ in the following grid. At what point do the two lines meet?



23. Solve each of the following systems:

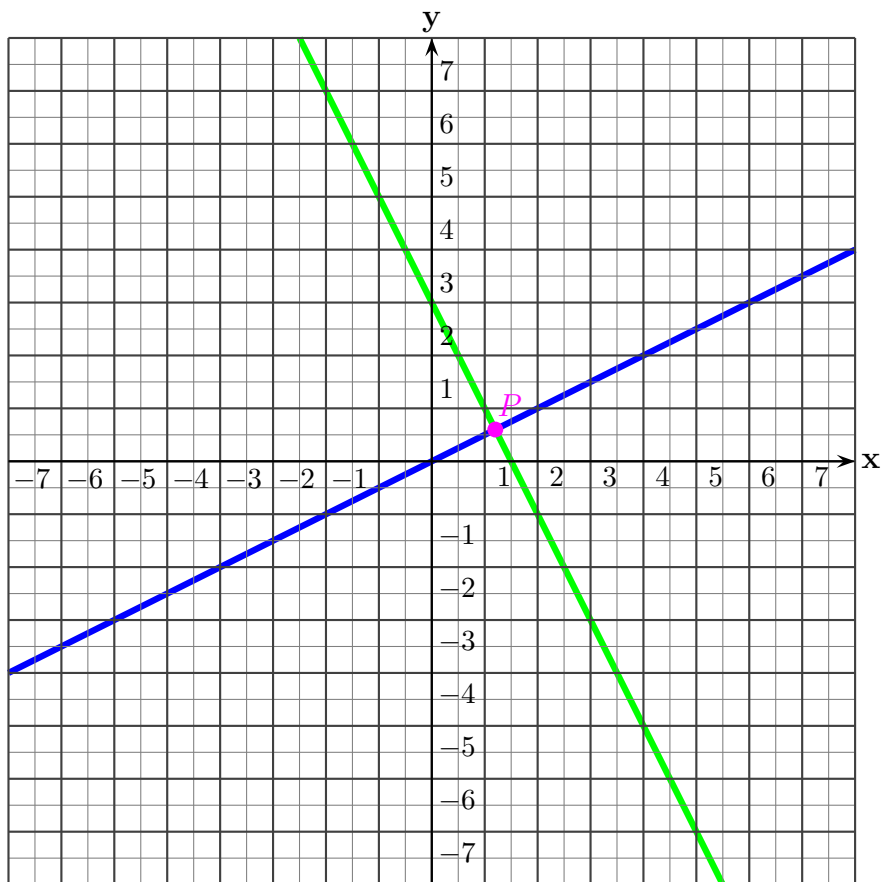
$$(a) \begin{cases} -3x + 2y = 6 \\ 2x - 3y = 6 \end{cases}$$

$$(b) \begin{cases} 2x + 2y = 3 \\ 3x - 2y = 4 \end{cases}$$

$$(c) \begin{cases} -2x + 5y = 3 \\ -5x + 2y = -3 \end{cases}$$

$$(d) \begin{cases} 5x + 7y = 29 \\ -10x - 7y = -51 \end{cases}$$

24. Consider the two lines whose graphs are shown in the same grid below:



- Write an equation in standard form for each of the lines
- Solve the system of those two equations
- What are the coordinates of the point P ?
- What is the angle between the two lines?