BRONX COMMUNITY COLLEGE
of the City University of New York

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

MATH 05
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Exam 3, Take Home
Due: November 7, 2016

Name: _____

> **Directions:** Write your answers in the provided space. To get full credit you *must* show all your work. Simplify your answers whenever possible. Be certain to indicate your final answer clearly. **Each problem is worth** 4 **points**

1. Given $a = 2$ and $b = -3$, evaluate the expression given below.

$$a^2 b + ab + b^2$$

   A. 3   B. 27   C. -15 D. -9

2. Given $a = -4$, $b = -5$, and $c = -1$, evaluate the expression given below.

$$b^2 - 4ac$$

   A. 9   B. 41   C. -41 D. -9

3. Solve for x:
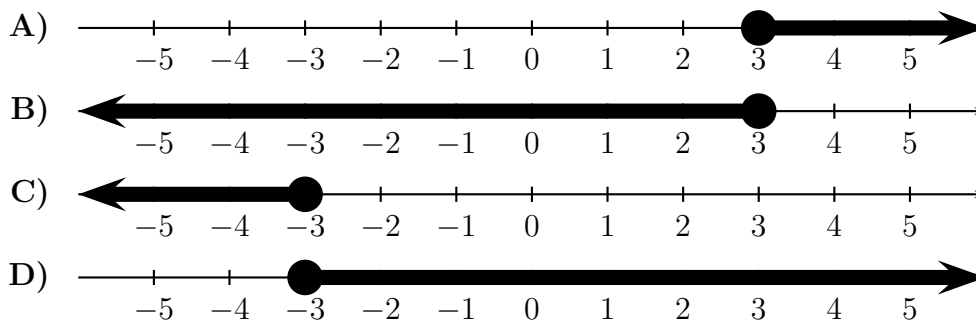$$\frac{2x}{3} + \frac{1}{2} = \frac{5}{6}$$

   A. $x = 2$ B. $x = \dfrac{2}{3}$ C. $x = \dfrac{1}{2}$ D. $x = \dfrac{3}{2}$

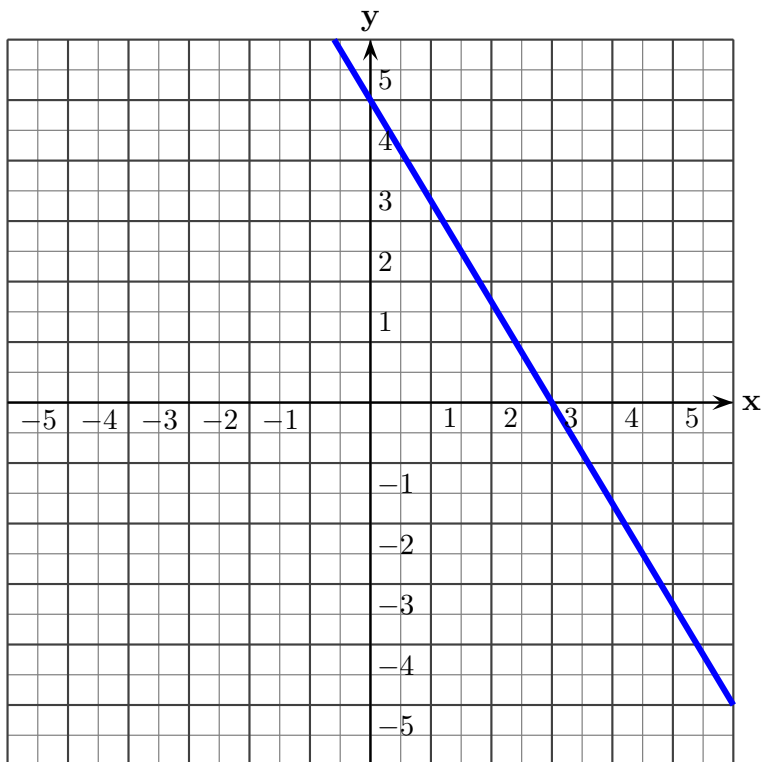4. Solve for x: $z = 5x + y$
   A. $x = 5(z - y)$ B. $x = \dfrac{z}{5} - y$ C. $x = \dfrac{z - y}{5}$ D. $x = \dfrac{z + y}{5}$

5. Find the graph of the solution to the inequality.

$$-x + 3 \geq 2x - 6$$

6. What is the slope of the line graphed below?

7. Find the slope and the x– and y–intercepts of the line with equation $-4x + 3y = -24$.

8. A line has slope $-\dfrac{2}{3}$ and passes through the point $(0, -5)$. Find it's equation.

9. A line has slope $\dfrac{3}{2}$ and passes through the point $(-6, -4)$. Find its equation.

10. A line passes through the points with coordinates $(-2, 3)$ and $(1, -3)$. Find its equation.

11. A vertical line passes through the point $(-2, 3)$. Find it's equation.

12. A horizontal line passes through the point $(5, 1)$. Find it's equation.

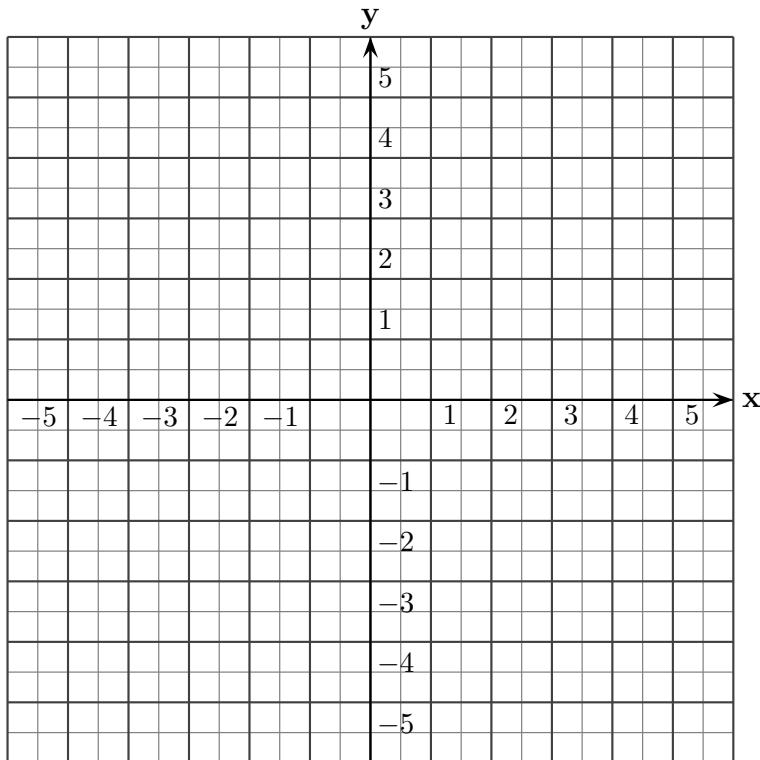13. Find the slope and the y intercept of the graph of the equation $\quad 4x - 3y = -6$

        A. slope= $\dfrac{4}{3}$ and y-intercept $(0, -2)$

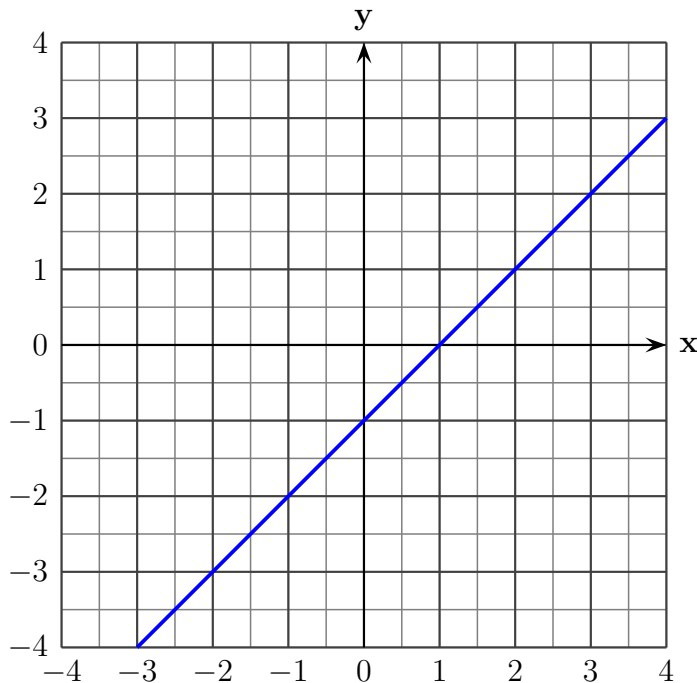   B. slope= $\dfrac{3}{4}$ and y-intercept $(0, -6)$

        C. slope= $-\dfrac{4}{3}$ and y-intercept $(0, -2)$

        D. slope= $-\dfrac{3}{4}$ and y-intercept $(0, -6)$

14. Graph the line with equation $2x - 3y = -6$ in the following grid.

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

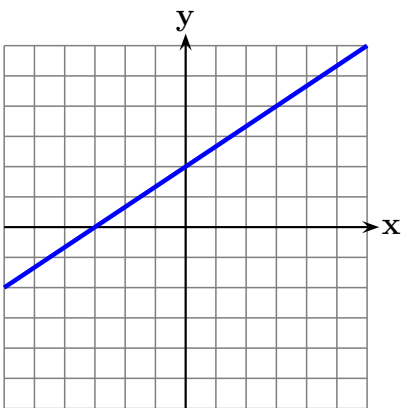   A. $x - y = 1$

    B. $x + y = 1$

    C. $x + y = -1$

    D. $x - y = -1$

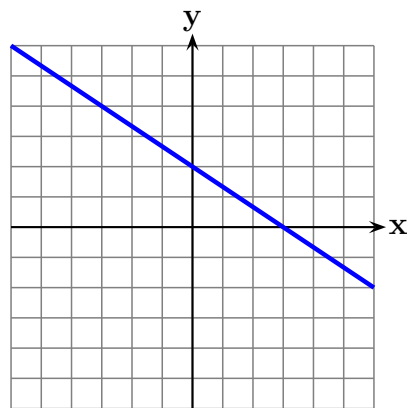16. Complete the following table of solutions for the equation $-2x + 5y = -10$.

x	y
0	
	0
5	
−15	
	−1

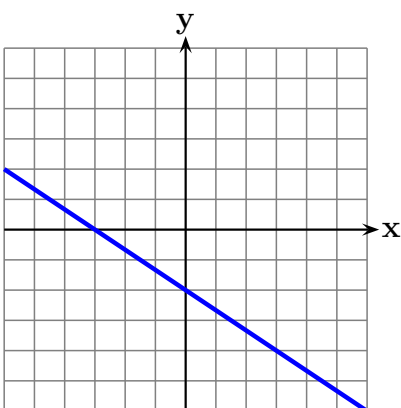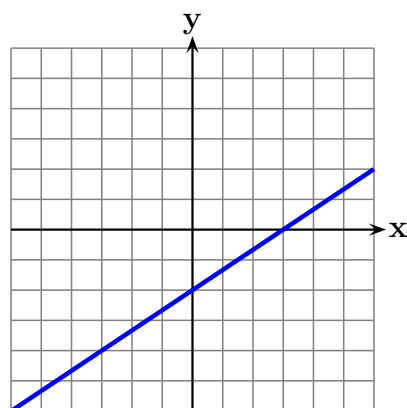17. Which of the following is the graph of the equation?

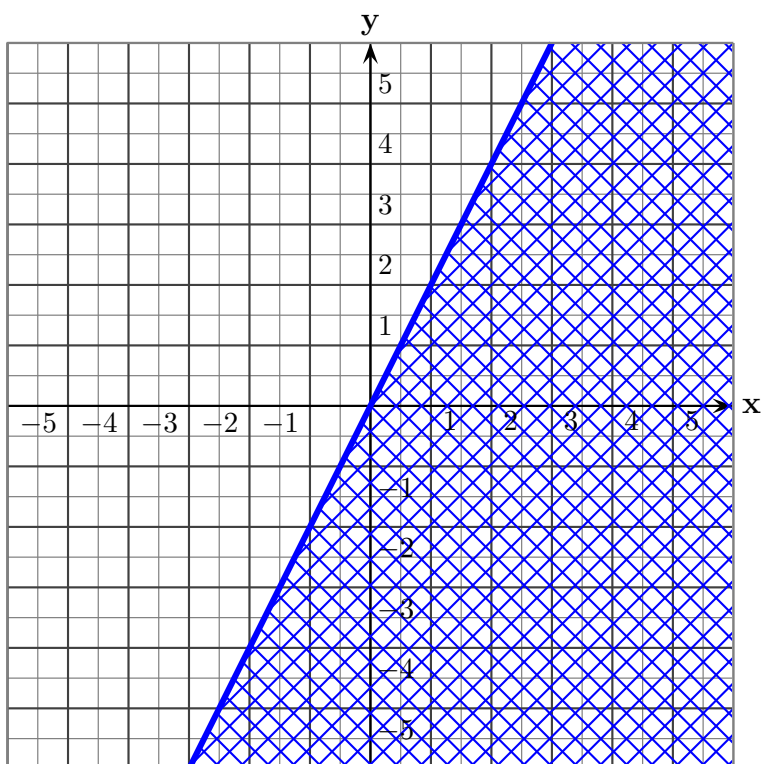$$2x + 3y = -6$$

(A)

(B)

(C)

(D)

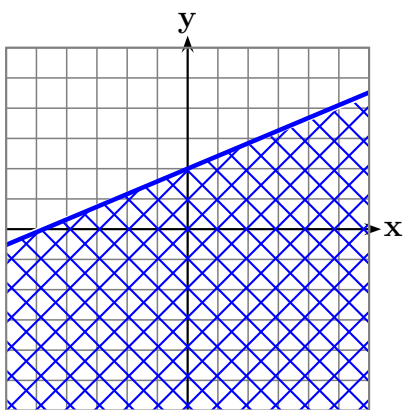18. Graph the inequality $x - 2y < 4$ in the following grid:
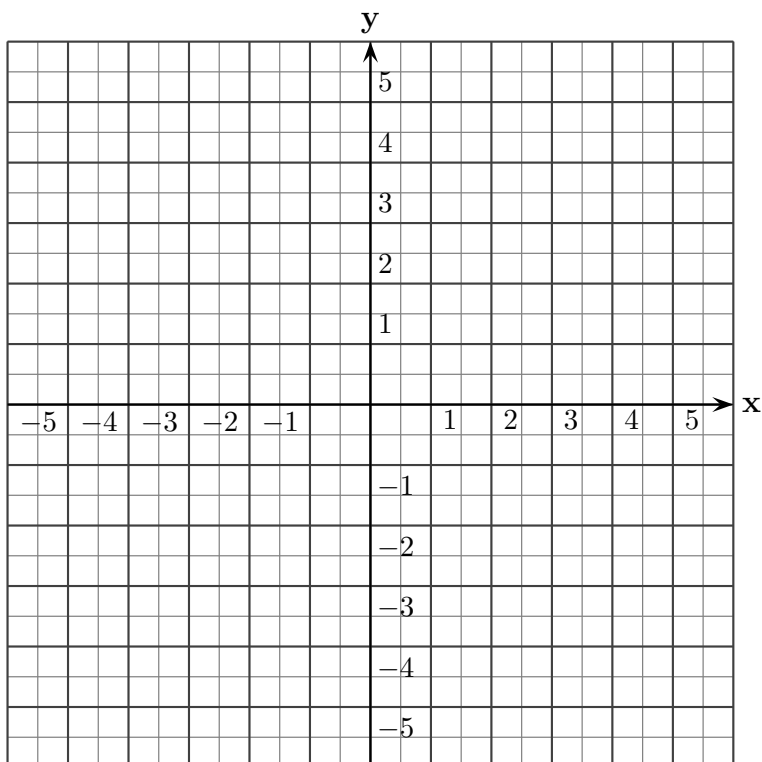
19. The graph of the solution set to an inequality is shown. Find the inequality.
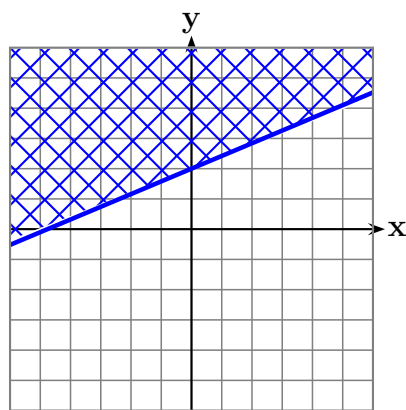

A. $y > 2x$

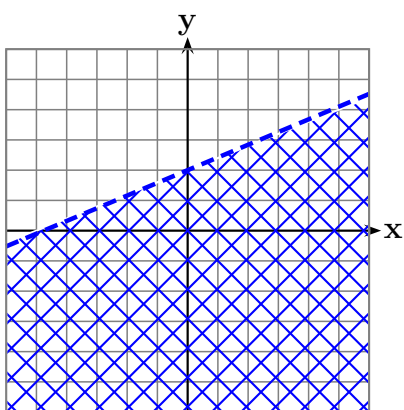**B.** $y \geq 2x$

C. $y < 2x$

D. $y \leq 2x$

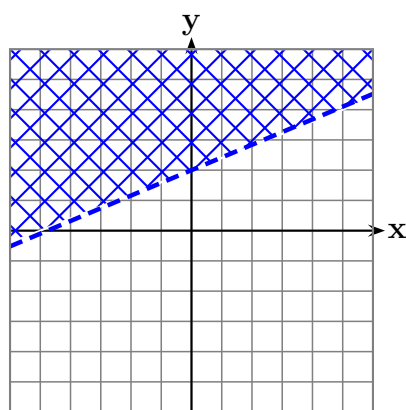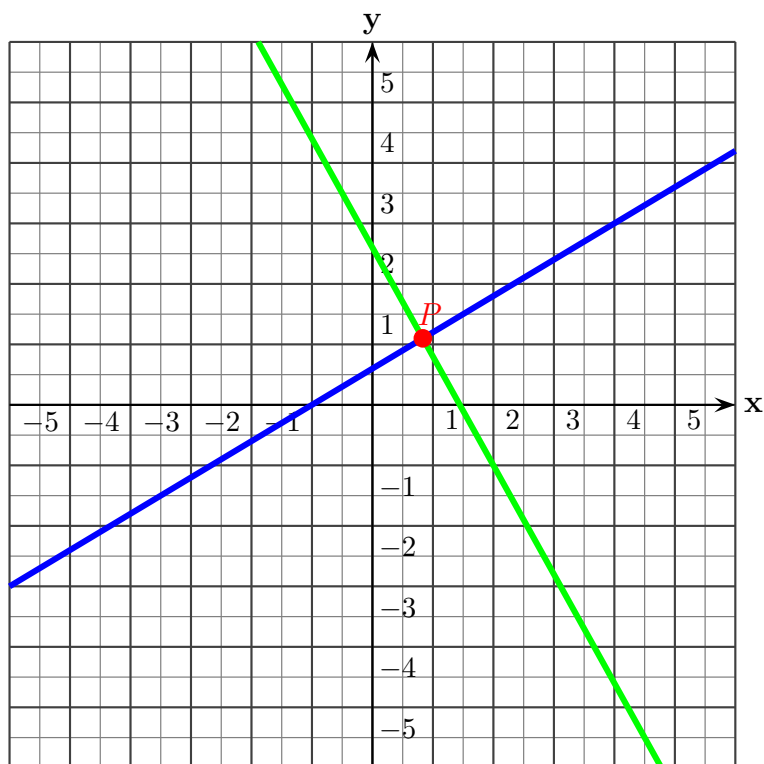20. Find the graph of the solution to the inequality: $-2x + 5y \geq 10$

(A)

(B)

(C)

(D)

21. The graphs of the lines with equations $-3x+5y = 3$, and $9x+5y = 13$ are shown bellow. What are the coordinates of the point P? Give *exact* answers.

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

$$\begin{cases} x - 3y = 8 \\ -3x + 8y = -25 \end{cases}$$

A. $y = 1$ B. $y = -1$ C. $y = 3$ D. $y = -3$

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

$$\begin{cases} 2x - y = 15 \\ -5x + 3y = -35 \end{cases}$$

A. $x = 10$ B. $x = -10$ C. $x = 5$ D. $x = -5$

24. The sum of the coordinates of the solution system $\begin{cases} 2x + 5y = 25 \\ -5x - 3y = -15 \end{cases}$ is:

A. 5   B. -5 C. 10   D. 0

25. Solve the system: $\begin{cases} 3x + 4y = 18 \\ 4x - 3y = -1 \end{cases}$