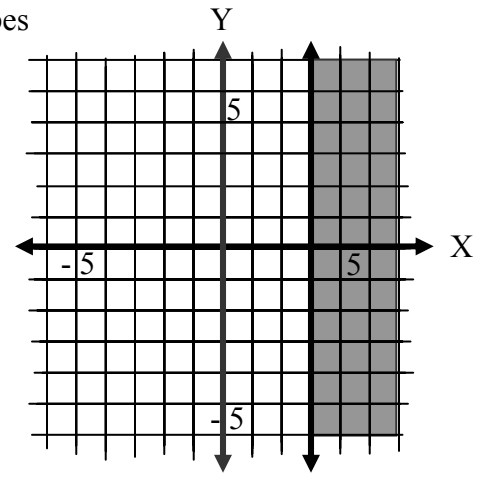
Math 0090 Lab Worksheet #8

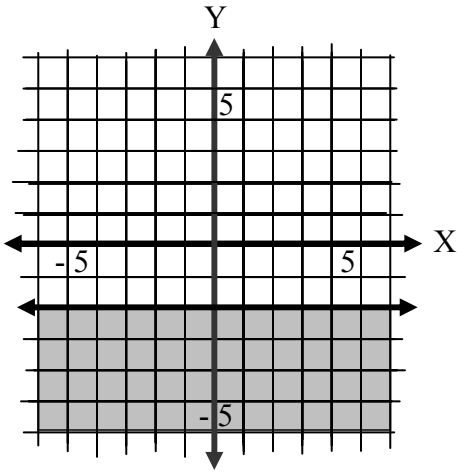
Objective: Solve problems #1 - #10 involving linear inequalities and their graphs.
#11 through #15 are review problems.

1. Which of the following inequalities describes the shaded region in the diagram?



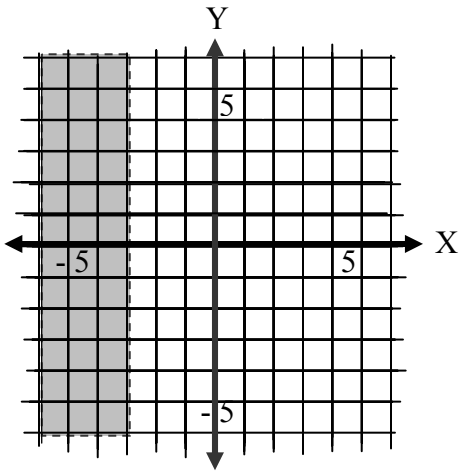
   A. $3x - y \geq 0$
   B. $x \geq 3$
   C. $y \leq 3$
   D. $3x \geq 3$

2. Which of the following inequalities describes the shaded region in the diagram?



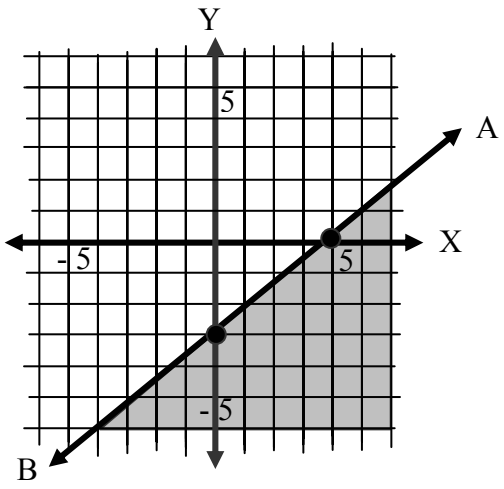
   A. $x - 2y > 0$
   B. $-2y \leq 0$
   C. $y \leq -2$
   D. $y > -2$

3. Which of the following inequalities describes the shaded region in the diagram?



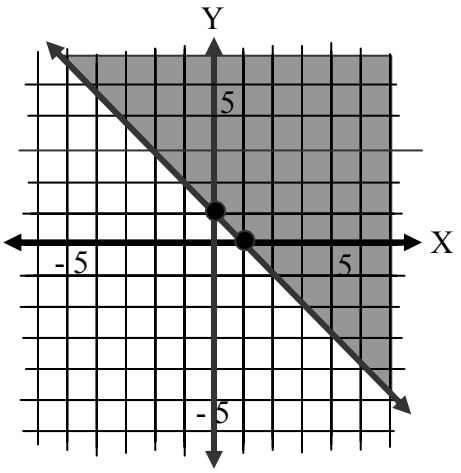
   A. $x < -3$
   B. $x \leq -3$
   C. $y \leq -3$
   D. $y < -3$

4. Which of the following inequalities describes the shaded region in the diagram?



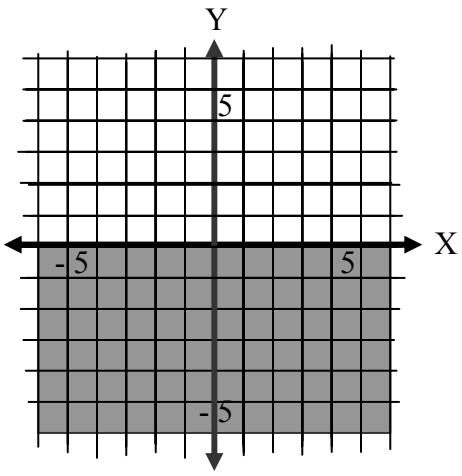
A. $5x - 3y \geq 0$
B. $3x - 4y \geq 12$
C. $5x - 3y \leq 0$
D. $3x - 4y \leq 12$

5. Which of the following inequalities describes the shaded region in the diagram?



A. $x + y \geq 0$
B. $x + y \leq 1$
C. $x + y \leq 0$
D. $x + y \geq 1$

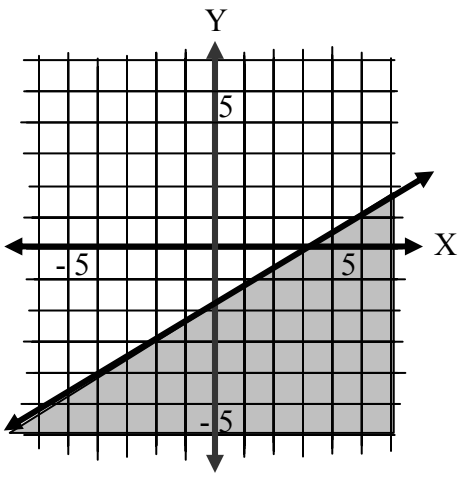
6. Which of the following inequalities describes the shaded region in the diagram?



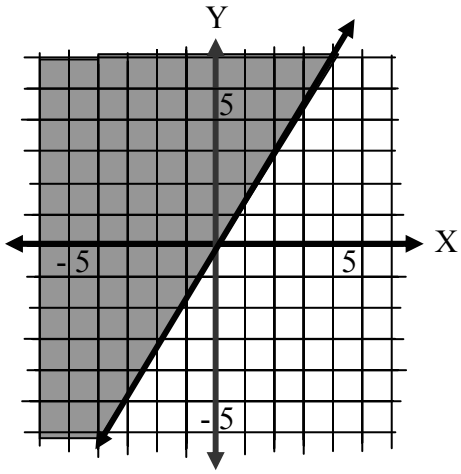
A. $x < 0$
B. $y \leq 5$
C. $y \leq 0$
D. $x > 0$

7. Which of the following is the graph of the inequality $3x - 2y \leq 0$?

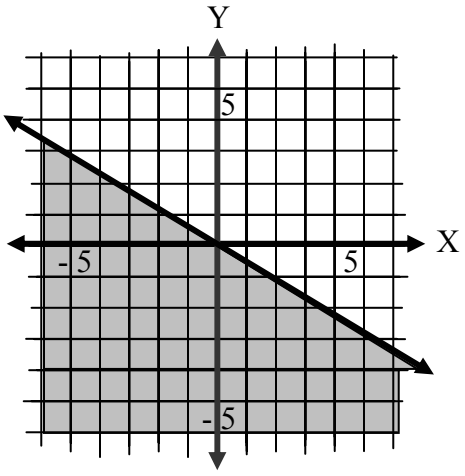
A.



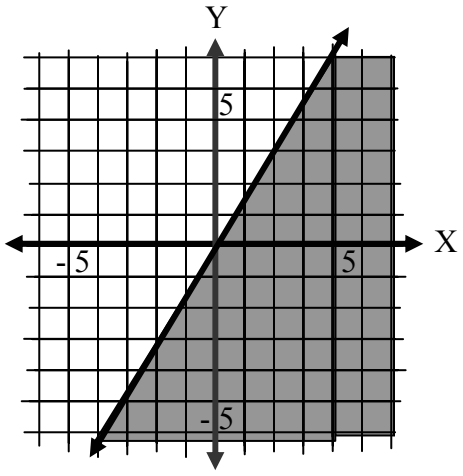
B.



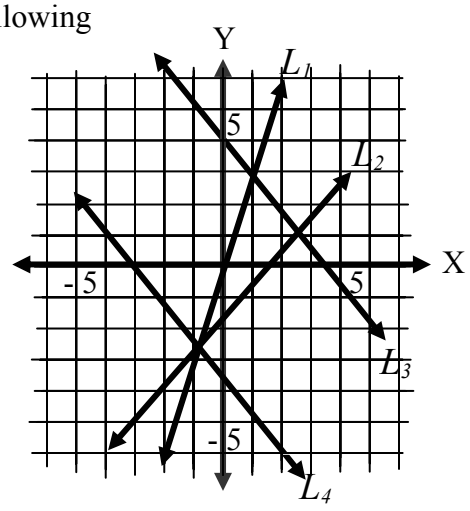
C.



D.



8. If x varies directly with y then which of the following lines in the graph represents this relationship?



A. L_1

B. L_2

C. L_3

D. L_4

9. Which of the following equations expresses the relationship that profit (P) varies indirectly with cost (C)?

A. $P = 2.4\,C$

B. $P = \dfrac{C}{2.4}$

C. $P = C + 2.4$

D. $P = \dfrac{2.4}{C}$

10. The numbers in the chart below are to be graphed on a coordinate plane.

X	-4	- 2	0	2	4	6
Y	3	2	1	0	- 1	- 2

Which of the following statements is <u>not</u> true for the graph that will result?

A. x-intercept of the graph is (2, 0).

B. y-intercept of the graph is (0, 1).

C. The slope of the line is negative.

D. y varies inversely with x.

11. Which polynomial added to $x - 3(x - 2)$ yields the sum $3x^2 - 7x - 9$?

A. $-7x - 15$

B. $x^2 + 5x - 15$

C. $3x^2 - 5x - 15$

D. $3x^2 + 5x + 15$

12. If $-2x - 5 = 3x + 15$, which of the following statements is true?

A. $x = -20$

B. $x = -4$

C. $x = 2$

D. $x = 4$

13. What is the sum of the roots of the equation $(x+5)(x-2)=0$?

A. - 10

B. - 7

C. - 3

D. 3

14. Simplify: $\left(\frac{x^5 y}{2y^2}\right)^{-2}$

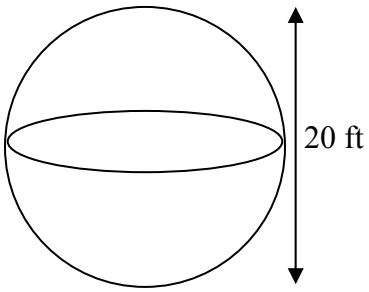
A. $\frac{x^{10}}{4y^2}$

B. $\frac{4y^2}{x^{10}}$

C. $\frac{x^{10}y^2}{4}$

D. $4x^{10}y^2$

15. Use the diagram below to answer the question that follows.



The spherical balloon is to be filled with hot air. Find the approximate amount of hot air that will be pumped into the balloon.

A. 133π ft^3

B. 400π ft^3

C. 1333π ft^3

D. 1600π ft^3