Math 1500: Section 1.3

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) Find the point of intersection of the two lines x + 3y = 1 and x - 3y = 5.

Solve the problem.

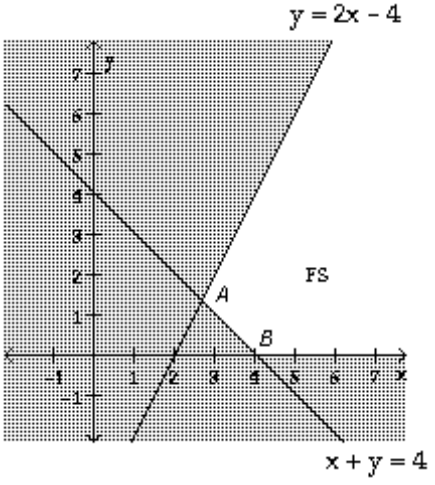
2) Does (3, 4) satisfy the following system?

$$\begin{cases} y = x + 1 \\ y = 7x - 6 \end{cases}$$

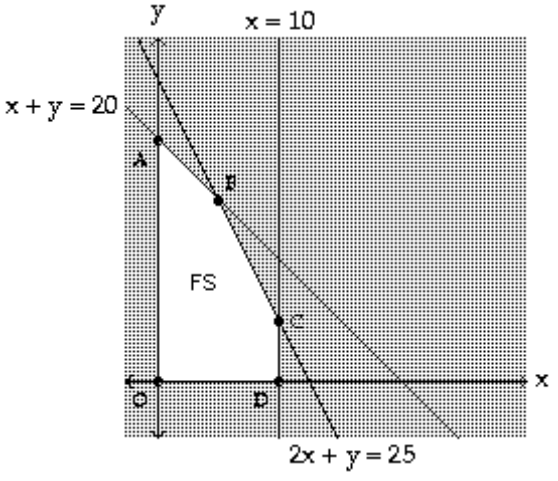
Solve the system of linear equations.

3) $\begin{cases} y = 5x - 3 \\ y = -3x - 11 \end{cases}$

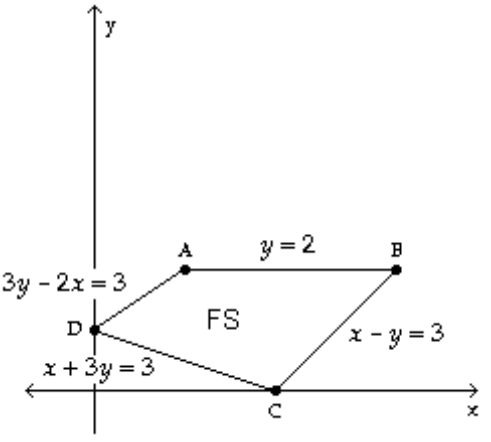
4) Consider the feasible set, FS, shown below. Find the coordinates of vertex A.



5) Consider the feasible set, FS, shown below. Find the coordinates of the vertex B.



6) Find the coordinates of the vertices of the feasible set shown below.



Graph the feasible set of the system of linear inequalities. Shade the region which consists of points that do not belong to the feasible set.

7) $\begin{cases} y \le 2x + 5 \\ y \ge x \end{cases}$

8) Consider the following system of linear inequalities:

$$\begin{cases} 2x + 3y \le 9 \\ x + y \le 4 \\ x \ge 0, y \ge 0 \end{cases}$$

(a) Graph the feasible set of the system.
(b) Find the coordinates of vertices of the feasible set.

Solve the problem.

9) Suppose that the supply and demand equations of a certain commodity are given by q = 5p - 15 and q = -2.5p + 30 respectively, where p is the unit price of the commodity in dollars and q is the quantity.
(a) What is the supply when the price is $8?
(b) What is the demand when the price is $8?
(c) Find the equilibrium price and the corresponding number of units supplied and demanded.
(d) Draw the graphs of the supply and demand equations on the same set of axes.
(e) Find where the two lines cross the horizontal axis and give an economic interpretation of these points.