Section 4.4

1) Graph the solution to system of inequalities. Find the vertices of the solution.

$$\begin{aligned} x + y &\leq 3 \\ x - y &\leq 1 \\ x &\geq -1 \end{aligned}$$
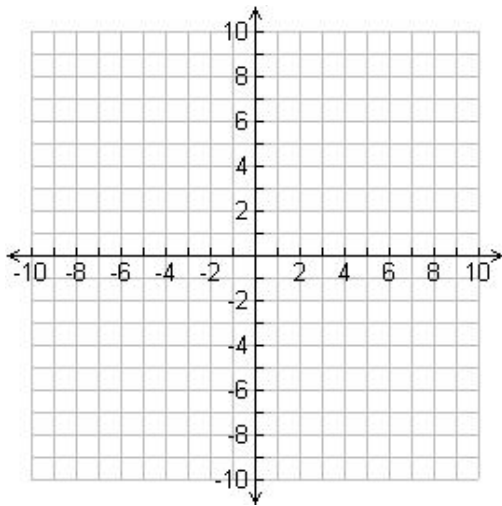

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2) Suppose you are told the equation that represents the proper traffic control and emergency vehicle response availability in the city of Jersey City is $P + 3F \leq 18,$ where P is the number of police cars on active duty and F is the number of fire trucks that have left the firehouse and are involved in a response to a call. In order to comply with staffing limitations, the equation $4P + F \leq 28$ is appropriate. The number of police cars on active duty and the number of fire trucks that have left the firehouse cannot be negative, so $P \geq 0$ and $F \geq 0.$

A) Graph the regions satisfying all of the availability and staffing limitation requirements for the city of Jersey City, where P is measured on the horizontal axis and F is measured on the vertical axis.
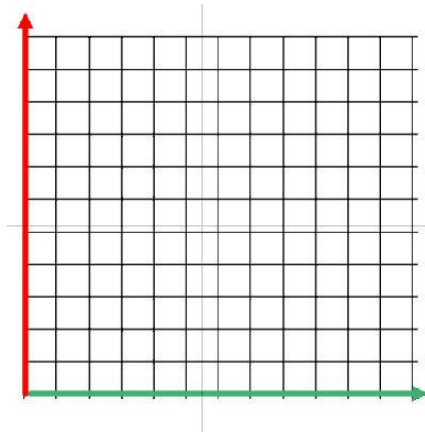
B) If four police cars are on active duty and four fire trucks have left the firehouse in response to a call, are all of the requirements satisfied? Explain.

C) If two police cars are on active duty and six fire trucks have left the firehouse in response to a call, are all of the requirements satisfied? Explain.