**Foundations of Math 11**                **Worksheet (Graphing linear inequalities in two variables)**
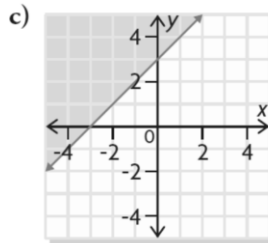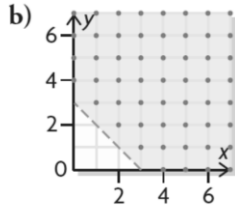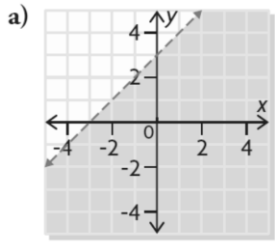
## *YOU MUST SHOW YOUR WORK WHENEVER POSSIBLE!*
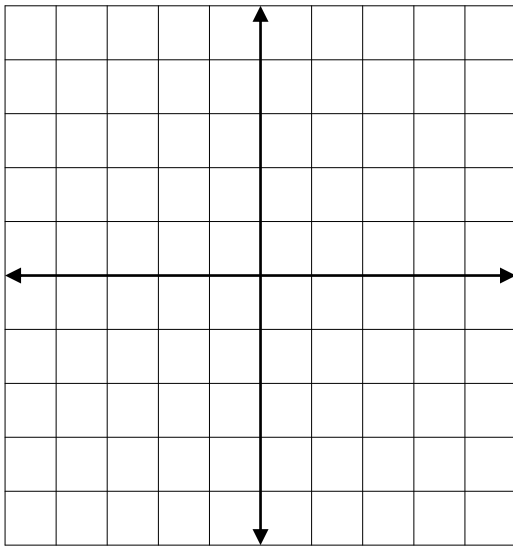
1. Match each graph with its linear inequality.

a)             b)             c)

i)   $\{(x, y) \mid x - 3 > -y, x \in W, y \in W\}$
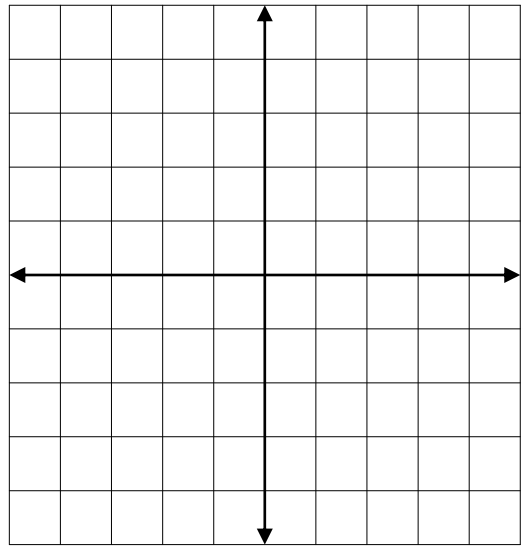
ii)   $\{(x, y) \mid x - y > -3, x \in R, y \in R\}$

iii) $\{(x, y) \mid y - 3 \geq x, x \in R, y \in R\}$

2. Graph the solution set for each linear inequality.

a)   $y > -x + 4$

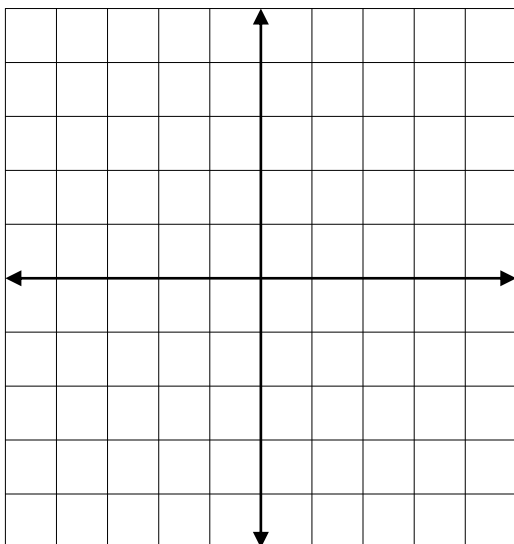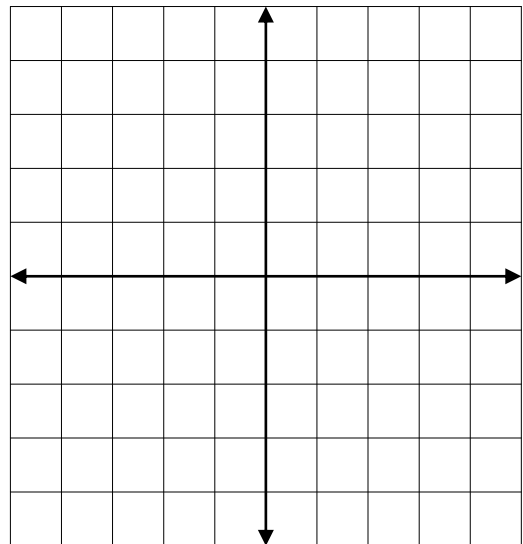b)   $4x + 3y \geq -12$

c)   $-4x - 8 < 4$

d)   $6\left(y + 1\right) \leq 2\left(y + 5\right)$

3. Grace's favourite activities are going to the movies and skating with friends. She budgets herself no more than $75 a month for entertainment and transportation. Movie admission is $9 per movie, and skating costs $5 each time. A student bus pass for the month costs $25. Let $x$ represent the number of movies Grace sees. Let $y$ represent the number of times Grace goes skating.

a) Write a linear inequality to represent the situation.

b) What are the restrictions on the variables? How do you know?

c) Graph the linear inequality.
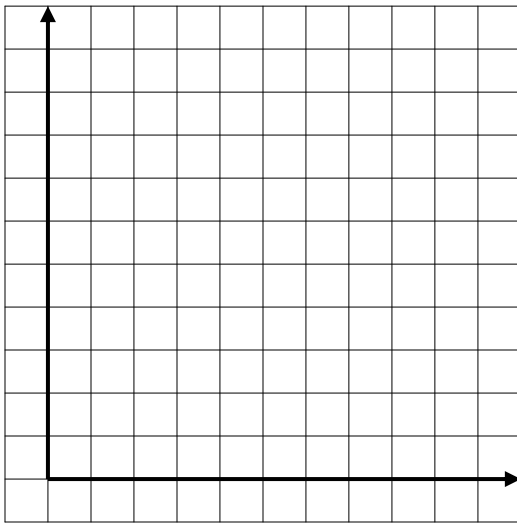
d) Use your graph to determine:
   i) a combination of activities that Grace can afford and still have some money left over

   ii) a combination of activities that she can afford with no money left over

   iii) a combination of activities that will exceed her budget

4. On Earth Day, a nursery sold more than $1500 worth of maple and birch trees. The maple trees were sold for $75, and the birch trees were sold for $50.

a) Define the variables and write a linear inequality to represent the possible combinations of trees sold. Are there any restrictions on the variables? Explain.

b) Graph the linear inequality.
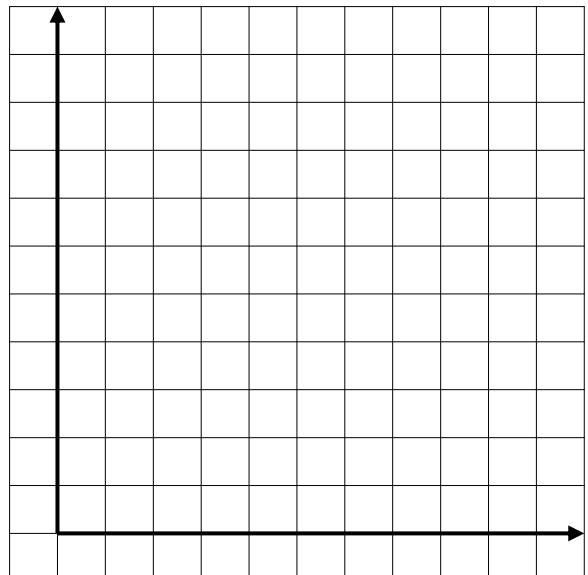
c) Use your graph to determine:

   i) if the nursery could have sold 13 of each type of tree

   ii) if 14 of one type and 9 of the other type could have been sold