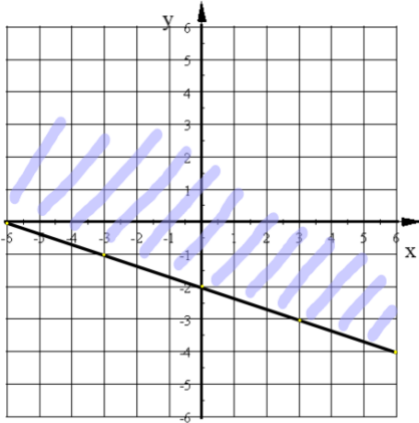1. Model this graph with an inequality.

2. Solve each system of equations.

a)   m - n = 7

         4m + 3n = 35

b)   3P - 8Q = 7

         5P - 6Q = -3

3. The grocery store got a delivery of 39 boxes of food. Inside each small box is 16 cans. Inside each large box is 24 cans. When all the boxes were opened there was a total of 768 cans of food. Write and solve a system of equations to find the number of small and large boxes.

4. Without graphing tell if each system of equations has ONE, NONE, or MANY solutions.

a) $y = -2x - 9$

     $10x - 5y = 45$

b) $y = -3x$

     $-3x + y = 7$

5. Factor.

a) $96x^5y^4 - 48x^2y^6$

b) $x^2 - xy - 12y^2$

6. A house you wanted to buy originally costs $280,000. Its value increases every 3 years. What will be the value of the house in 24 years?

7. The number of cells of a certain bacterium doubles every 20 minutes. At 9:00 AM there are 300 bacteria cells. Find the number of bacteria cells at 3:30 PM.