Honors Discrete Math - Worksheet 4.1 – Graphing linear equations and inequalities

Name _____ Date _____ Period ____

Objective: Students will be able to graph linear functions and solve systems of linear functions using algebra and graphs in the coordinate plane. Students will also be able to graph linear inequalities and will solve systems of linear inequalities using graphs in the coordinate plane.

Graph each line in the coordinate plane by finding the intercepts.

1.) $2x+3y=18$

2.) $6x+5y=60$

3.) $7x+4y=28$

Graph both lines in the same coordinate plane to estimate their point of intersection. Then use algebra to calculate each intersection point's coordinates.

4.) $\begin{cases} 3x+y=12 \\ 4x+3y=26 \end{cases}$

5.) $\begin{cases} 2x+6y=15 \\ x+2y=6 \end{cases}$

6.) $\begin{cases} 5x+2y=18 \\ 5x+3y=22 \end{cases}$

Graph the line and half-plane corresponding to each inequality, in the coordinate plane.

7.) $x \geq 4$

8.) $2x+3y>12$

9.) $6x+7y \leq 42$

10.) $y \geq 2$

Graph and shade the solution region to each system of inequalities, in the coordinate plane.

11.) $y \geq x-5$ and $2x+y>4$

12.) $y \leq 3x$ and $x+y<8$

13.) $y \geq -x+4$ and $2x-y>-2$

14.) $x \geq 0$ and $y \geq 0$ and $x+y \leq 6$ and $12x+6y \leq 48$