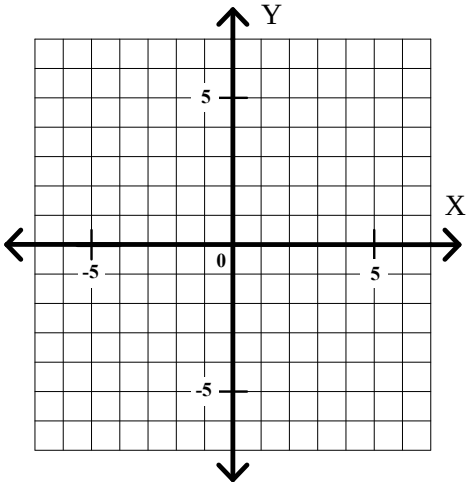
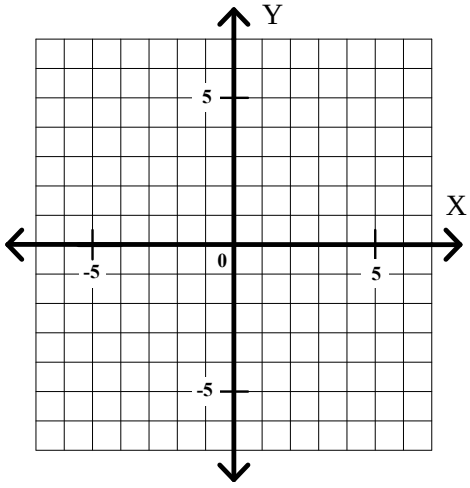
Algebra II Review Unit 4 page 1 _____

Graph each of the following linear inequalities.

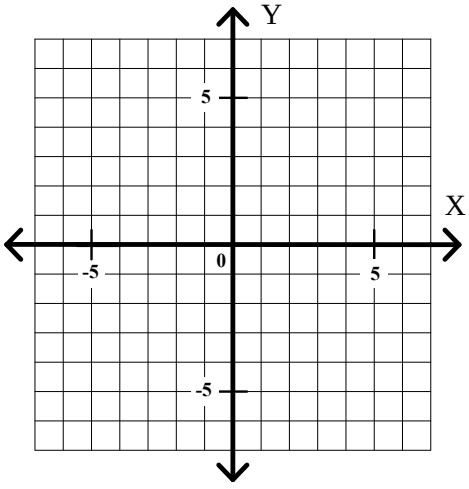
1. $y < -2x + 4$



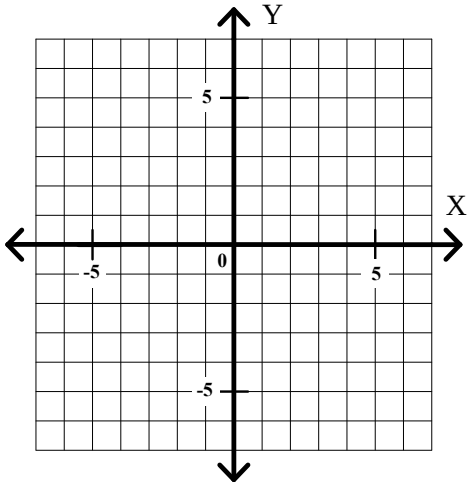
2. $y \geq 3x - 2$



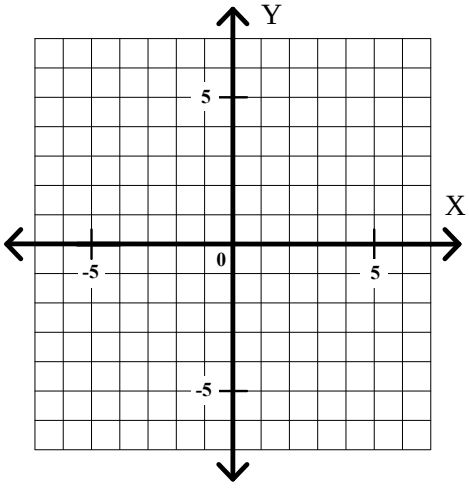
3. $y \leq \frac{2}{3}x + 1$



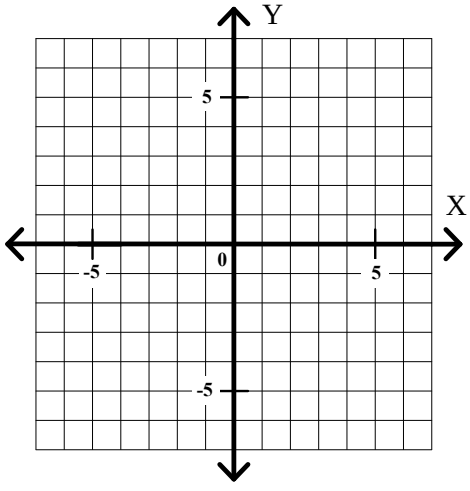
4. $y > \frac{-5}{3}x - 3$



5. $3x + 5y > 10$



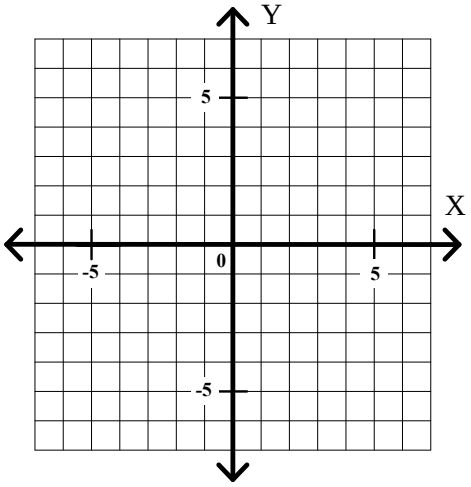
6. $4x - 3y \geq 9$



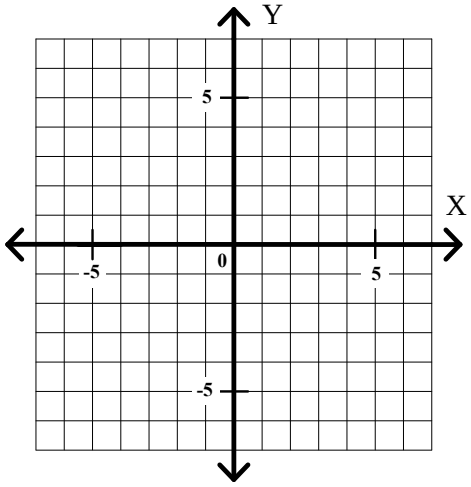
Algebra II Review Unit 4 page 2

Graph the solution set of each of the following compound inequalities. Find the coordinates of any vertex.

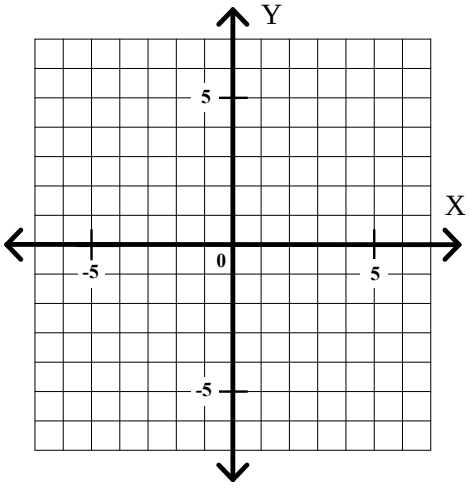
7. $y < 2$ **and** $x + 2y < 4$



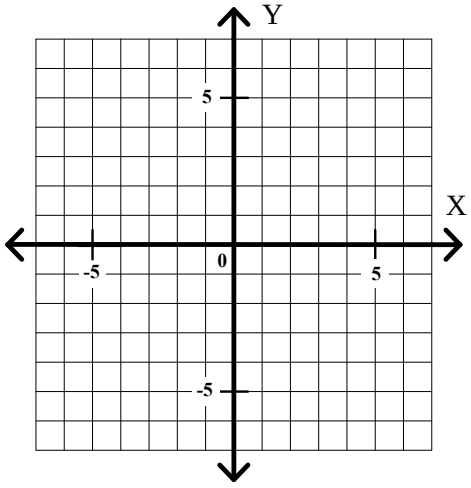
8. $x \leq 2$ **and** $3x - 2y < 4$



9. $2x + 3y \leq 3$ **or** $x \geq 3$



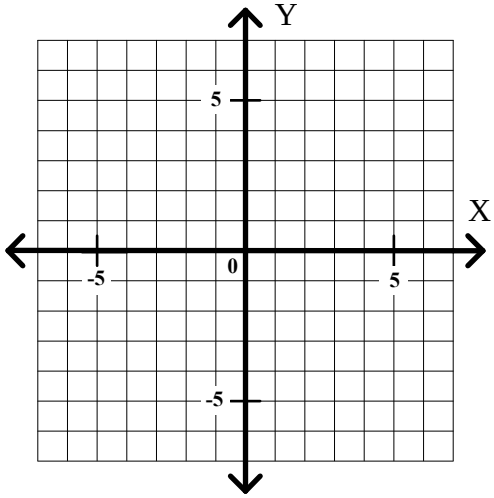
10. $x + 4y > 0$ **or** $x - y > 0$



Graph the following system of inequalities.

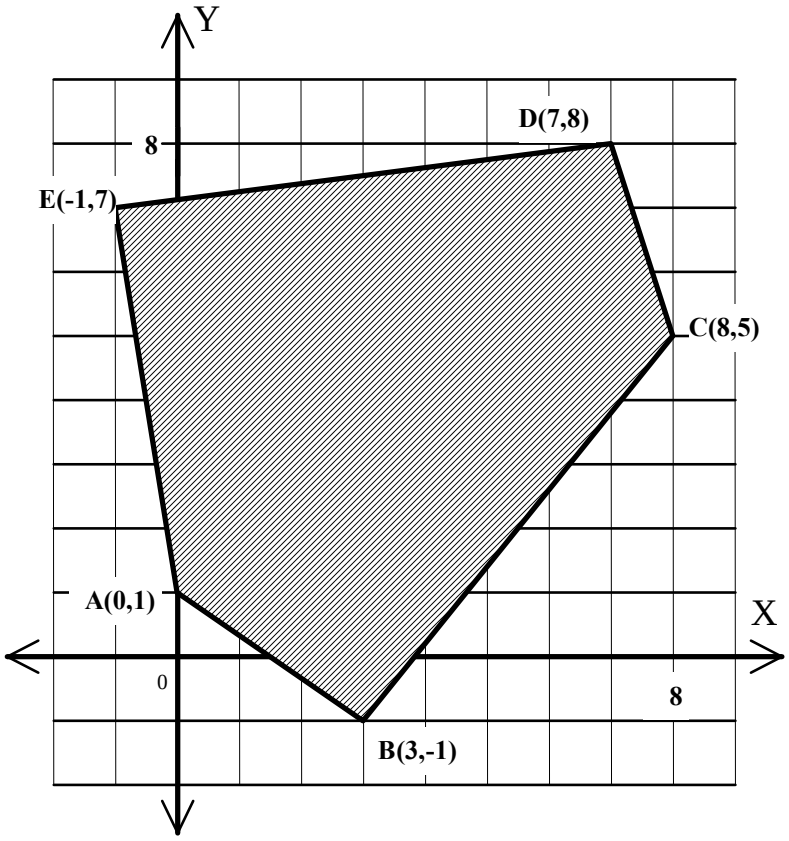
11.

$$x - 2y \geq -8$$
$$x + 4 \geq 0$$
$$x + y \geq -5$$
$$3x - 2y \leq 10$$
$$3x + 4y \leq 16$$



Algebra II Review Unit 4 page 3

Below, you are given a graph of a system of inequalities (system of constraints) and several objective functions. In each case, you are to find both the maximum and the minimum value of the objective function and the vertex at which each occurs.



12. **T = x + 4y**

T_{max} = _____ at _____

T_{min} = _____ at _____

13. **T = 5x – 3y**

T_{max} = _____ at _____

T_{min} = _____ at _____

14. **T = 2x – 3y**

T_{max} = _____ at _____

T_{min} = _____ at _____

15. **T = 3x + y**

T_{max} = _____ at _____

T_{min} = _____ at _____

Algebra II Review Unit 4 page 4

Solve the following linear programming problem graphically.

16. A company makes two models of light fixtures, A and B, each of which must be assembled and packed. The time required to assemble model A is 12 minutes, and the time required to assemble model B is 18 minutes. It takes 2 minutes to package model A and 1 minute to package model B. Each week there is a maximum of 240 hours of assembly time available and a maximum of 20 hours of packing time available. If the profit on model A is $6 and the profit on model B is $7, then how many light fixtures of each type should be made each week for maximum profit? What is the maximum profit?