Section 6.5 – Chapter Summary

Problem Set 1

Find the intersections of the following pairs of lines.

1. $2y + x = 3$ and $-4y + x = -3$
2. $2x + y = 9$ and $3x - 2y = 10$
3. $9x + 2y = 5$ and $5x - y = 2$
4. $\frac{4}{5}x - y = 2$ and $\frac{3}{8}y - \frac{1}{8}x = 0$
5. $4x - 2y = 4$ and $4x + 4y = 4$
6. $3x - 2y = 4$ and $-2x + 6y = 16$
7. $3x - 2y = 6$ and $-2y + 2x = 4$
8. $-2y = 3x - 17$ and $3y + x = 5$
9. $3x + 2y = 0$ and $4x = y + 11$
10. $6x + 3y = -3$ and $4x = 3y + 23$

Graph the following inequalities

11. $4x \geq -2y + 2$
12. $-2x < 3y + 4$
13. $2x \leq -3y + 5$
14. $3x + 2y > 0$
15. $2x + 4y \geq 3$
16. $3y - 2x < 3$

Graph the solution of the following systems of linear inequalities.

17. $3y + x \geq 2$ and $x > 0$
18. $3x + 6y > 1$ and $4y + 3x < 4$
19. $2y + 4x < 1$ and $3y + x < -3$
20. $2y + 3x > 0$ and $3x - 2y < 2$
21. $4x + 5y \leq 1$ and $2x - 3y > 5$
22. $3y + 2x > 9$ and $5x + 3y > 2$

Find the following values.

23. Flying against a head wind, a small plane takes 8 hours to travel 2240 miles. The same trip with the wind only takes 5 hours. What were the speeds of the plane and the wind?
24. A small plane can fly 880 miles with the wind in four hours. If the same four hour flight only covers 720 miles going against the wind, what's the plane's speed?
25. A chemist has two alcohol solutions. One is 20% alcohol; the other is 65% alcohol. He needs 500 ml of a 50% alcohol solution. How much of each solution should he mix together?
26. How many grams of an alloy containing 20% copper must be combined with an alloy that has 75% copper to get 450 grams of an alloy containing 50% copper?