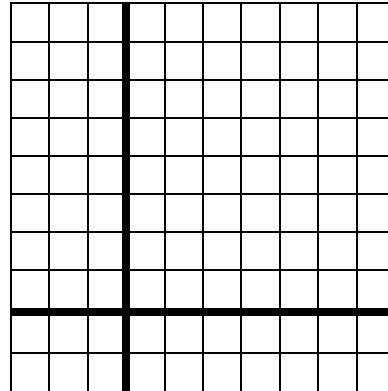# MATH 100 Review Exercises 10/27/2008

1. **For the following system of equations, sketch a graph of the equations, and estimate the solution by looking for the point of intersection. Then solve the system of equations algebraically.**

   2x + y = 7
   y = x + 1

2. **The cost of materials used in manufacturing one table is $120 and for one bookcase is $45. Write an equation that shows the number of tables (T) and the number of bookcases (B) that can be manufactured with a materials budget of $8,100.**

3. **Sketch a graph of a function that satisfies the following conditions:**

   y is positive when x = 0 and the graph is increasing and concave upward until x = 3; then the graph continues to increase but is concave down until x = 6. From x = 6 to x = 9 the graph decreases and remains concave down, and when x = 9 the value of y = 0.

4. **Find the equation of a function whose graph will be the same as the function given after the manipulation described.**

   y = 5x + 3; shift 2 units right and then shift up 4 units.

5. **If $G(x) = \dfrac{1}{x} + 5$, then identify each of the following:**

   a. $G(-2)$ b. $G(2x-1)$ c. $G(\dfrac{2}{x})$

6. **Invert the following function to show X as a function of Y.**

$$Y = \frac{3}{(X-5)} + 2$$

7. **Derive the equation for the composition of the following functions.**

    Find a rule for G(x), or (G(F(x)) where y = F(x) = 0.5x + 11 and G(y) = 6y - 20.

8. **Simplify each of the following:**

    a. $\sqrt{16x^{12}}$ **b.** $\left(x^4 y^3 x^5\right)^2$ **c.** $\dfrac{8x^3 y^5}{2xy^4}$

9. **Denise put $2000 in a CD that promised to pay 6.5% per year for 5 years. How much will she get after 5 years?**

10. **Write a rule for a function that will allow you to address the question in the following exercise; then address the question. Tom will stock his pond with 200 ponds of catfish this year. He figures that the catfish population will grow in size so that their total weight will increase by 10% each month for the next two years. If he is correct, what will be the weight of all the catfish in the pond in two years?**