**Problem a1:** Line B crosses point A(2,3) and B(3,8), what is the slope of line B?

**Problem a2:** A line passes through points (2,3) and (4,v), the slope of this line is 5. What is the value of v?

**Problem a3:** The amount of money that farmers in Massachusetts paid to maintain their between 1991 and 2008 is modeled by the equation P=3.53t+100, where P is the amount of money the farmers paid, in millions of dollars, and t is the year (assuming 1991 is t=0). How much money does farmers get in the year 2001?

**Problem a4:** A college bookstore charges $60 for a yearly membership. The first book is free with the membership, and any book after that costs $7.60 including tax. How much money does a student spend after buying books and a yearly membership?

**Problem b1:** Solve this linear system using your method: 6x - 5y = 8 and -12x + 2y = 0.

**Problem b2:** Line A contains the point (0,5) and is perpendicular to the line B 4y=x, what is the general form of line A?

**Problem b3:** As a construction manager, you are asked to build a new straight road, which crosses the point (0,0). There is another straight road already built, which can be expressed as y=2x-1. You are asked to build your road such that it will never cross this other road. Find the correct value for a and b in the following equation of your road (y = ax+b). Round any decimals to the nearest hundredth.

**Problem b4:** Kendrick wrote a business plan for an entrepreneurship class, and now he has to make bound copies. Kendrick could use a printer who charges a setup fee of $50 and $5 for every copy printed. Another possibility is to go to the office supply store, where he could pay an up-front fee of $30 and $7 per copy. There is a certain number of copies that makes the two options equivalent in terms of cost. How much would the copies cost?

**Problem c1:** Find the distance between A(2,0) and B(5,4)?

**Problem c2:** There exists two points A(2,4) and B(5,v), the distance between A and B is 5. What are values of v?

**Problem c3:** The class of math is mapped on a coordinate grid with the origin being at the center point of the hall. Mary’s seat is located at the point (-4, 7) and Betty’s seat is located at (-2, 5). How far is it from Mary’s seat to Betty’s seat?

**Problem c4:** You're leading the Shmoopville Beefalos in the championship football game  against your bitter rivals, the Yooda City Wildcats. You're 3 yards from the end zone and 4 yards from the sideline, and you throwed the ball 5 yards to Othello to complete the big play. Othello is 7 yards from the end zone. How far does Othello stand from the sideline?