Concept: Line Slope y=mx+b, slope = (rise)/(run)

Problem a1: Line B crosses point A(2,3) and B(4,8), 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). What is the difference between the farmers' pay in any pair of consecutive years?

Problem a4: A college bookstore charges $2 for a yearly membership. If you buy one book it costs $10. If you buy three books it costs $26. If you were to graph the function of the cost of books at a bookstore, what is the slope (or book cost) of the function?

Problem a5: Bill went to the college bookstore and bought 3 books for $18. Another customer went and bought 5 books for $30 dollars. If you went to the bookstore and added one more book to your order, how much would your cost increase?

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

Problem b2: Consider the system of linear equations 9x - 14y = -3 and 2x - ay = -6. Which is the value of a will result in the above system of equations with no solutions?

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: Tickets for a play were $2 for each child and $4 for each adult. At one showing of the play, one adult brought 4 children and the remaining adults brought 2 children each. The total ticket sales from the children and adults was $60. How many children and adults attended the play?

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?