

Date_____ Alg_____

Solve the following modeling problems by modeling systems of equations. Remember to: 1) Define your variables 2) Write two equations that fit the situation 3) Solve your system algebraically 4) Use your solution to answer the question in a full sentence.

- 1) A yoga studio charges \$35 per yoga class for nonmembers. Members pay a \$60 per month membership fee and \$5 for each class. After how many yoga classes are the member and nonmember costs the same?
- 2) Traveling with the current a certain boat went 20 mph. Against the same current it only went 4 mph. What is the speed of the current? How fast would the boat go if there were no current?
- 3) Dan's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 13 adult tickets and 11 student tickets for a total of \$207. The school took in \$193 on the second day by selling 13 adult tickets and 9 student tickets. Find the price of an adult ticket and the price of a student ticket.

- 4) The difference of two numbers is 3. Their sum is 25. Find the numbers.
- 5) The senior classes at High School A and High School B planned separate trips to Yellowstone National Park. The senior class at High School A rented and filled 2 vans and 7 buses with 377 students. High School B rented and filled 12 vans and 14 buses with 834 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?
- 6) Kayla and Julia are selling pies for a school fundraiser. Customers can buy cherry pies and lemon meringue pies. Kayla sold 5 cherry pies and 6 lemon meringue pies for a total of \$154. Julia sold 8 cherry pies and 2 lemon meringue pies for a total of \$102. Find the cost each of one cherry pie and one lemon meringue pie.