**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Systems of Linear Equations by Substitution**

**WORD PROBLEMS: Systems of Linear Equations (Answer ALL)**

**Read each problem carefully then answer the questions.**

1. One brokerage firm, the Elizabeth Martinez Agency, charges a base charge of $50 plus 10 cents per share of stock purchased or sold. A second brokerage firm, Pablo Rodriguez and Associates, charges 30 cents per share of stock purchased or sold. Let *x* be the number of shares of stocks purchased or sold and *y* be the total charge.
   1. Write an equation that represents the charges of Elizabeth Martinez Agency.
   2. Write an equation that represents the charges of Pablo Rodriguez and Associates.
   3. Determine the number of shares of stock that must be purchased (or sold) for the total cost/charge to be the same.
   4. How much will the total charge be when they are equal?
   5. If you have 525 shares, which one will charge higher?
2. You are choosing from two different security systems Lundy and Ellington. Lundy’s system costs $4400 and $15 per month. Ellington’s on the other hand costs $3400 plus $25 per month. Let *x* be the number of months and *y* be the total amount you pay.
3. Write an equation for Lundy’s system.
4. Write an equation for Ellington’s system.
5. After how many months will the total cost of the two systems be the same?
6. About how much will you pay the same?
7. If you plan to use it for 5 years, which system should you get to pay lower cost?
8. Jack Orozco’s furnace is 10 years old and has a problem. The furnace repairman indicates that it will cost Jack $600 to **repair** his furnace but it will cost her $650 per year for electricity costs. OR He has an option to get an energy efficient **replacement** for his furnace that costs $1800 and will only cost $450 per year of energy. Let *x* be the number of years and *y* be the total cost.
   1. Write an equation that represents the cost for repair.
   2. Write an equation that represents the cost for replacement.
   3. Find the number of years for which the total cost of repair would equal the total cost of replacement.
   4. How much would the cost be?
9. The Evergreen Landscape Service charges a consultation fee of $200 and $60 per hour of labor. The Out of Sight Landscape Service charges a consultation fee of $300 and charges labor for $40 per hour. Let *x* be the number of hours of labor and *y* be the total cost.
   1. Write an equation for Evergreen Landscape Service.
   2. Write an equation for Out of Sight Landscape Service.
   3. Find the number of hours of labor for the two services to have the same total cost.
   4. How much will there cost be?
   5. If you only want them to work for 10 hours, which Landscape Service charges less?
10. Ashiana has $150 in her bank account and she is adding $15 a month. Jaydeliz has $80 in her account and plan to put $20 each month. Let *x* be the number of months and *y* be the total savings in the bank.
11. Write an equation for Ashiana.
12. Write an equation for Jaydeliz.
13. After how many months will their savings be the same?
14. How much will each one have?
15. Who will have more money after 2 years? (Remember: convert years to months because the problem is per month)