Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Notes: Solving Linear Systems With Three Variables**

Solve the system:

**Step 1**: First, choose two of the equations and the variable to eliminate. In this case, variable *y* seems appropriate. Add equations (A) and (B) together to eliminate *y*.

Work:

**Step 2**: Now, choose a different pair of equations to eliminate *y*. Using equations (A) and (C) this time, we multiply equation (A) by 2 and then add the result to equation (C).

Work:

We now have equations (D) and (E) in variables *x* and *z*.

Solve the two variable system for *x* and *z* using substitution or elimination.

Once you have found the values of *x* and *z*, choose one of the three original equations to substitute into to find the value of *y*.

**Class Practice**:

1. 2.

3. You have a combination of nickels, dimes, and quarters that total $ 2.75. There are 21 coins. The number of dimes is twice the number of nickels. Set up a system of equations to determine how many nickels, dimes, and quarters you have. DO NOT SOLVE.