Solving Multi-step Problems Using *Strip Diagrams*

Set up and solve the following problems with the aid of strip diagrams that depict the relevant relationships to help you find the answer.

1. There are 180 blankets at the animal shelter to keep animals off the drafty cold floors, while providing some cushioning. There are 30 more small animal (such as cats and dogs) blankets than blankets for large animals (such as cows and horses). How many large animals will the shelter be able to take?

2. After receiving her paycheck for the month, Ms. Jones gives ¼ of her money to charity and ½ of the remainder to her mother. Then, Ms. Jones has $240 left. How much money does Ms. Jones make each month?

3. The town of Mansfield reallocated 10% of the children from Goodwin Elementary School to Southeast Elementary School so that both schools had the same number of children. By what percentage did the number of children at Southeast increase with the addition of the new children?

4. When a box of chocolates was full, it weighed 1.1 kilograms. After ½ of the chocolates were eaten, the box (with the remaining chocolates) weighed 0.7 kilograms. How much did the box weigh without the chocolates?

5. Steve had 4 times as many math problems to do as Paul. After Steve did 20 problems and Paul did 2 problems, they each had the same number of math problems left to do. How many math problems had been assigned to Steve?

6. A bakery sold 3/5 of its muffins. The remaining muffins were divided equally among 3 employees. Each employee got 16 muffins. How many muffins did the bakery have at first?

Now, select 4 problems from the above and solve them using algebraic equations. For each problem, compare the two approaches side-side and discuss how they are related.