

## Example 2 (defining variables and writing equations)

Let  $a$  = the number of adults;  $s$  = the number of students

Since 75 tickets were sold  $\Rightarrow a + s = 75$

Since adult tickets cost 7.50,  $7.50a$  is the adult revenue. Similarly  $3.50s$  is the student revenue and \$462.50 is the total revenue  $\Rightarrow 7.50a + 3.50s = 462.50$

Solving the first equations for  $s$  ( $s = 75 - a$ ) and replacing or substituting it in the second equation yields the same equation as the Guess and Check method and is solved in the same way.

Write a possible equation and find the solution. Define your variables

1. A box of fruit has four more apples than oranges. Together there are 52 pieces of fruit. How many of each type of fruit are there?
2. Thu and Cleo are sharing the driving on a 520 mile trip. If Thu drives 60 miles more than Cleo, how far did each of them drive?
3. Aimee cut a string that was originally 126 centimeters long into two pieces so that one piece is twice as long as the other. How long is each piece?
4. A full bucket of water weighs eight kilograms. If the water weighs five times as much as the empty bucket, how much does the water weigh?
5. The perimeter of a rectangle is 100 feet. If the length is five feet more than twice the width, find the length and width.
6. The perimeter of a rectangular city is 94 miles. If the length is one mile less than three times the width, find the length and width of the city.
7. Find three consecutive numbers whose sum is 138.
8. Find three consecutive even numbers whose sum is 468.
9. The perimeter of a triangle is 57. The first side is twice the length of the second side. The third side is seven more than the second side. What is the length of each side?
10. The perimeter of a triangle is 86 inches. The largest side is four inches less than twice the smallest side. The third side is 10 inches longer than the smallest side. What is the length of each side?
11. Thirty more student tickets than adult tickets were sold for the game. Student tickets cost \$2, adult tickets cost \$5, and \$1460 was collected. How many of each kind of ticket were sold?