1 How many baskets of each size did you sell?

In the past, Confederated Tribes of Grand Ronde tribal members would travel to larger cities to sell their baskets. They would spend months gathering the materials and weaving a variety of different types of baskets out of material such as hazel sticks, cattail, juncus. In addition to selling their baskets, they would also trade the baskets for goods that were not as easy to obtain living further away from urban areas.

In this lesson we will use System of equations to determine "How many baskets of each size did you sell?" Let 'x' represent a small basket, and let "y" represent a large basket. At the farmers market, a tribal family brings a bunch of baskets. They sell small baskets for $5.00, and large baskets for $10.00. On this day they sell 35 baskets and make $250. How many small baskets did they sell and how many large baskets did they sell?

SOLUTION: To represent the number of baskets sold, you can create the equation $5x+10y = 250$. Since you sell the small baskets for $5 you use $5x$ to represent sale for each small basket. The large baskets for $10 so you use $10y$ to represent each large basket sold, and the 250 is the total amount that you made that day.
To represent the total number of baskets you sold, you can use the equation $x + y = 35$. Since you do not know the number of small baskets "x" or the number of large baskets "y" but you do know the total baskets sold of 35. Once you have the two equations, you can use any method of systems of equations to find out how many small baskets and how many large baskets you need to make.

Using Substitution.
1st List the equations.
$5x + 10y = 250$
$x + y = 35$

2nd Solve one of the equations for a variable. In this example we will solve the second equation for y.
$x + y = 35$ (subtract x from each side of the equation)
$y = -x + 35$
3rd Substitute the "$-x + 35$ in for y into the first equation, and solve for x.
$5x + 10(-x + 35) = 250$. Showing the substitution step
$5x - 10x + 350 = 250$. Distribute into the parenthesis.
$-5x + 350 = 250$. Combine like terms.
$-5x = -100$. Subtract 350 from both sides to isolate the variable.
$x = 20$. Divide both sides by -5
They sold 20 small baskets.
Once you have solved for the number of small baskets you need to find out how many large baskets you need to make. To do this you substitute $x = 20$ into one of the original equations.
$(20) + y = 35$ I am choosing the 2nd equation because there is less work to solve for y.
$20 + y = 35$. Now subtract 20 from both sides of the equation to isolate y.
$y = 15$ They sold 15 large baskets.

The family sold 20 small baskets and 15 large baskets to make a total $250.

Exercise problems

1 In 1915, a Grand Ronde family took their baskets up to Portland to make some money. They sold their small baskets \$0.25 and they large baskets \$1.00 each. At the end if the day they sold 78 baskets and made \$45? How many small baskets and how many large baskets did they sell?

2 A Grand Ronde family spent part of the winter making baskets. In June of 2019, they took all there baskets to Salem to sell them. They made 110 total baskets and sold them all. They sold the small baskets for \$10.00 and large baskets for \$18.00 and made a total of $\$1,372$. How many small baskets and how many large baskets did they bring to Salem?

3 A tribal family gathered their baskets that they recently weaved and decided to raise some money. They took them to the Pow Wow and sold the cattail baskets for \$18.00 and the hazel stick baskets for \$22.00. They sold a total of 73 baskets and raised \$1450. How many cattail baskets and how many hazel stick baskets did they sell?