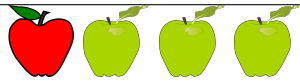
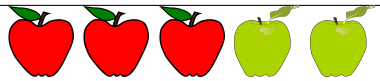
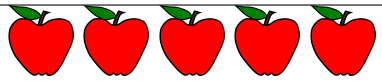
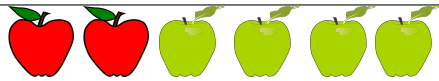
Problem of the Week
Problem B and Solution
The Apple of Your Eye

Problem

Four friends go to a local apple orchard to pick apples. The table below summarizes how many of baskets of each variety were picked by each friend. Each  represents a basket of Macintosh apples and each  represents a basket of Golden Delicious apples.

Student	Apples Picked
Artur	
Khalil	
Zendaya	
Georgina	

(a) Let m be the number of apples in a basket of Macintosh apples and g be the number of apples in a basket of Golden Delicious apples. For each friend, create an algebraic expression in terms of m and g for the total number of apples they picked.

(b) Let T be the total number of apples that all of the friends picked. Combine like terms to create an algebraic equation for T in terms of m and g.

(c) Suppose there are 12 apples in each basket of Macintosh apples and 10 apples in each basket of Golden Delicious apples. What is the total number of apples picked by the friends?

Solution

(a) We have the following algebraic expressions for the number of apples picked by each friend:

- Artur: $1m + 3g$
- Khalil: $3m + 2g$
- Zendaya: $5m$
- Georgina: $2m + 4g$

(b) Using the expressions in part (a), we have
$T = m + 3m + 5m + 2m + 3g + 2g + 4g = 11m + 9g$.

(c) The total number of the Macintosh apples is $11 \times 12 = 132$ apples. The total number of the Golden Delicious apples is $9 \times 10 = 90$ apples.
Therefore, the total number of apples they picked is $132 + 90 = 222$ apples.

An alternate way to determine the number of apples is to substitute $m = 12$ and $g = 10$ into the equation $T = 11m + 9g$ and follow the order of operations to get
$T = 11 \times 12 + 9 \times 10 = 132 + 90 = 222$ apples.