Sample Answers

The Pumpkin Sale

At a pumpkin patch, small pumpkins are sold for $3, medium pumpkins are sold for $7, and large pumpkins are sold for $12. Ms. Jones is in charge of the decorations for the town's fall festival and purchased 16 pumpkins from the pumpkin patch including at least one of each size. She spent a total of $109. How many of each size pumpkin did she buy?

s = # of small pumpkins
m = # of medium pumpkins
l = # of large pumpkins

$3s + 7m + 12l = 109$
$s + m + l = 16$

Alternate approach

Each of the 16 pumpkins cost her at least $3, which uses up $48. The remaining $61 must have been used for the upcharge for med + large pumpkins $(7-3)m + (12-3)l = 61$
$4m + 9l = 61$

$3s + 7m + 12l = 109$
$-(3s + 3m + 3l = 48)$
$4m + 9l = 61$

$4m + 9l = 61$

$1 < l < 6$ since she bought at least 1 and buying 6 would make $m < 1$.

l	$61 - 9l$
1	52
2	43
3	34
4	25
5	16
6	7

must be a multiple of 4 since m is a whole #

$\frac{52}{4} = 13$

$\frac{16}{4} = 4$

1 large, 13 medium, 2 small
or
5 large, 4 medium, 7 small

Jamirea says there are two possible answers so there's no way of knowing for sure how many of each kind Ms. Jones bought. Do you agree or disagree? Explain.

yes, there are two possible combinations of small, medium, and large pumpkins that cost $109 for 16 pumpkins so we don't know which of these combinations she actually bought.

1 large, 13 medium, 2 small
or
5 large, 4 medium, 7 small