Problem of the Week
Problem A and Solution
Aquarium Issues

Problem

Jacques got an aquarium for his birthday and wants to fill it with some guppies and tetras. Guppies are sold in groups of four and tetras are sold in groups of three. He can buy four guppies for $12, and three tetras for $7.

If Jacques spent exactly $50 on fish, how many of each fish did he buy?

Solution

Since 50 is not a multiple of 12 or a multiple of 7, then Jacques must have bought some of each fish in order to spend exactly $50. One way to solve this problem is to make a table to keep track of how much money it costs for multiples of four guppies, and how much of the $50 would be left to buy tetras.

Number of Guppies	Cost for Guppies (in $)	Money Leftover for Tetras (in $)
4	$1 \times 12 = 12$	$50 - 12 = 48$
8	$2 \times 12 = 24$	$50 - 24 = 26$
12	$3 \times 12 = 36$	$50 - 36 = 14$
16	$4 \times 12 = 48$	$50 - 48 = 2$

Now we look for a multiple of seven in the leftover money, because each group of tetras costs $7. The only multiple of seven in the leftover money is 14. Since $14 = 2 \times 7$, Jacques must have bought two groups of tetras.

This means Jacques bought 12 guppies and $2 \times 3 = 6$ tetras.