

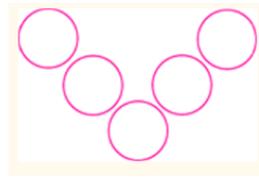


## Problem Solving- Working Systematically



1. **Two Primes Make One Square-** Flora had a challenge for her friends. She asked, "Can you make square numbers by adding two prime numbers together?"  
Tom had a think. "Well, let me see... I know that  $4 = 2 + 2$ . That's a good start!" Have a go yourself. Try with the squares of the numbers from 4 to 20.

2. **Find Fifteen-** Tim had nine cards, each with a different number from 1 to 9 on it. He put the cards into three piles so that the total in each pile was 15. How could he have done this?  
Can you find *all* the different ways Tim could have done this?



3. **Magic Vs-** Place each of the numbers 1 to 5 in the V shape below so that the two arms of the V have the same total. How many different possibilities are there?

4. **Buying a Balloon-** Lola bought a balloon at the circus. She gave the clown six coins to pay for it. What could Lola have paid for the balloon? Which of your answers seems a reasonable amount to pay for a balloon?



5. **Make 37-** Four bags contain a large number of 1s, 3s, 5s and 7s. Pick any ten numbers from the bags so that their total is 37.

6. **Make 100-** You must choose four different digits from 1–9 and put one in each box to make 100. For example:

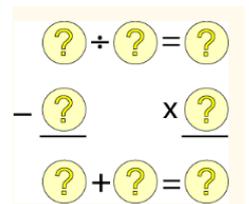
5	2
1	9

This gives four two-digit numbers:

52 (reading along the 1st row)  
19 (reading along the 2nd row)  
51 (reading down the left hand column)  
29 (reading down the right hand column)

In this case their sum is 151. Try a few examples of your own. Is there a quick way to tell if the total is going to be even or odd? Your challenge is to find four different digits that give four two-digit numbers which add to a total of 100.

7. **Square of Numbers-** Can you put the numbers 1 to 8 into the circles so that the four calculations are correct?



8. **Triangles-** How many triangles can you make on this peg board?

