Tip the Pans

There are 9 coins:

- 8 are identical and weigh the same.
- 1 is a counterfeit and weighs less than each of the others.

1. With a pan balance and the 9 coins, what is the fewest number of weighings necessary to identify the coin that is the counterfeit?

___________________

2. With 20 coins including 1 counterfeit coin, what is the fewest number of weighings necessary to identify the counterfeit coins:

___________________
The Mind Reader and the Mathematician

A mind reader and a mathematician are walking to a conference when they see 3 people approaching. The mind reader asks “How old are those 3 people?” The mathematician replies, “The product of their 3 ages is 2450. The sum of their ages is twice your age.” The mind reader says “Wow! You are right but, you need one more clue." The mind reader replies, “No two people are the same age.”

How old are the three people?

How old is the mind reader?

Balanced

Same shapes have the same weight

1. How many cylinders will balance 80 cubes?

2. How did you figure it out?
Alphabet Challenge

Row 1 A
Row 2 ABB
Row 3 ABBCCC
Row 4 ABBCCCD[...]

The pattern continues

How many letters are in
1. Row 5?
2. Row 6?
3. Row 10?
4. Row 26?

What is the last letter in
5. Row 8?
6. Row 9?
7. Row 15?
8. Row 25?

Name the Numbers

Pile 1   Pile 2   Pile 3

Row 1          
Row 2          
Row 3          

Use the clues.
Place the numbers 1-9 in the blanks.

Clues
- All numbers in Pile 1 are prime numbers.
- All numbers in Pile 2 are square numbers.
- The number in Row 1 Pile 2 and the number in Row 1 Pile 3 are cubic numbers.
- All numbers in Pile 3 are even numbers.
- The sum of the numbers in Row 3 is 14.
- The sum of the numbers in row 1 is 16.
Balzano is a puzzle that will tap into your logical reasoning abilities. Read the directions carefully, then try your hand at Balzano Shapes.

Directions:

Your job is to figure out the Desired Arrangement (the solution) from clues that provide information about the shapes and their locations. The possible shapes are hexagon, triangle, trapezoid, and parallelogram.

Shapes may be repeated.

The Arrangement Column shows sets of shapes in rows. In the Balzano puzzle below, the second row, arranged in order from left to right, is: parallelogram, parallelogram, and triangle.

Correct Shape in the Correct Place identifies the number of shapes that are in the Desired Arrangement AND in the correct place. The second row has no shape that is in the Desired Arrangement and in the correct place.

Correct Shape in the Wrong Place identifies the number of shapes in the Desired Arrangement that are the right shapes BUT in the wrong place. There are two of these in the second row.

Incorrect Shape identifies the number of shapes that are NOT in the Desired Arrangement. There is one of these in the second row.

<table>
<thead>
<tr>
<th>Arrangement Column</th>
<th>Correct Shape in Correct Place</th>
<th>Correct Shape in Wrong Place</th>
<th>Incorrect Shape</th>
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<td>□ △ □</td>
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