

## Challenge '06. Solutions

**1. Crazy Equation**

Surprisingly there are several. Obviously 64 and 81, but also 01, 04 and 09.

**2. A 20<sup>th</sup> Century Squire**

The only square number between 1900 and 2000 is  $1936 = 44^2$ . So the year of birth must have been 1936, and the date of the conversation 44 years later in 1980.

**3. Division**

The obvious simultaneous equations lead to the numbers 76 and 24 as the only ones satisfying the demands of the question.

**4. Banker's order**

Her solution was to have 10 bags containing 1, 2, 4, 8, 16, 32, 64, 128, 256 and 489 dollar bills, respectively.

**5. Tiling problem**

We reckon that one can get away with as few as 7 tiles, arranged as follows, where the positions of the red tiles are marked with an X.

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O O O O O
O O X O O
X X X X X
O O X O O
O O O O O
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**6. Knightly prowess**

The six cuts that isolate the middle cube of the 27 do the job, and, clearly one needs that many.