**White Week Challenge**

**Number 1**

**Times Table**

Place the digits 2 to 7 (used once only) in the circles.
Multiply in pairs to get the nine products in the table.
Add these nine products.

How do you place the six digits to get the highest possible total?
[The maximum is 182. How is this maximum achieved?]

Extension

All of the row (and column) totals divide by a certain number (other than 1). Why is this?



Solution

 3 4 7

 2 6 8 14

 5 15 20 35

 6 18 24 42

Total 182

All the rows will add up to a multiple of 14. This is because the numbers at the top add up to 14.

( 3x2 + 4x2 + 7x2 is the same as 14 x2)

All the columns add up to a multiple of 13 (because 6 + 5 + 2 = 13).