Runge-Kutta assignment 1

Consider the RK method

$$\begin{array}{c|cccc} c_2 & a_{21} & & & \\ \frac{4c_2}{3} & a_{31} & a_{32} & & \\ 1 & a_{41} & a_{42} & a_{43} & \\ \hline & b_1 & b_2 & b_3 & b_4 \end{array}$$

Using the value of c_2 as given in the table below, determine the values of the various coefficients such that the method is of order four. What happens when $c_2 = \frac{1}{2}$?

$$c_2 = \frac{p}{q}$$

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
p	2	3	1	8	2	2	3	3	5	4	5	4	7	7	5	4
q	7	7	5	9	8	5	5	9	7	5	8	6	9	8	9	7