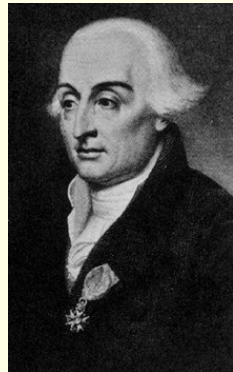


Puzzle game – 2-nd order homogeneous LDE

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Instructions: Select a question clicking its checkbox. Solve the problem, write the answer and click Submit. Use constants A and B in the general solution. No guessing! A maximum of 3 tries on any problem before you get 3 penalty points! Passing is to complete the puzzle with only 4 incorrect answers.

To the picture: Today's **Mr. X** was born at Turin on January 25, 1736, and died at Paris on April 10, 1813. He was one of the greatest mathematician of the 18th century. It is said that he was able to write out his papers complete without a single correction required. Before the age of 20 he was professor of geometry and by his mid-twenties he was recognized as one of the greatest living mathematicians because of his papers on wave propagation and the maxima and minima of curves. Between 1772 and 1788, **Mr. X** re-formulated Classical/Newtonian mechanics to simplify formulas and ease calculations. His greatest work, *Mécanique Analytique*, was a mathematical masterpiece and the basis for all later work in this field. His analysis of mechanical problems is so elegant that *Sir William Rowan Hamilton* said the work could only be described as a scientific poem. It may be interesting to note that our **Mr. X** remarked that *mechanics was really a branch of pure mathematics*.



Mr. X also established the theory of differential equations and provided many new solutions and theorems in number theory. He also invented the method of solving differential equations known as *variation of parameters*.

1. $y'' - 5y' - 6y = 0$

2. $y'' - 4y' + 6y = 0$

3. $y'' + 3y = 0$

4. $y'' + 3y' + y = 0$

5. $y'' - 2y' + y = 0$

6. $y'' - 4y = 0$

7. $y'' - 2y' + 2y = 0$

8. $y'' - 2y = 0$