

A. Nalezněte obecná řešení rovnic:

- |    |                                       |     |                                       |
|----|---------------------------------------|-----|---------------------------------------|
| 1. | $y^{III} - 3y'' + 3y' - y = 0$        | 7.  | $y^{IV} - 5y'' + 4y = \sin x \cos 2x$ |
| 2. | $y'' - 2y' - 3y = e^{4x}$             | 8.  | $y'' - 2y' + y = \frac{e^x}{x}$       |
| 3. | $y'' - y = 2e^x - x^2$                | 9.  | $y'' + 4y = 2\operatorname{tg} x$     |
| 4. | $y'' - 3y' + 2y = \sin x$             | 10. | $y'' + y' = \frac{1}{1 + \exp x}$     |
| 5. | $y'' + 4y' - 5y = 2e^x \sin^2 x$      | 11. | $x^2 y^{III} = 2y'$                   |
| 6. | $y'' - 2y' + y = 2xe^x + e^x \sin 2x$ | 12. | $x^2 y'' + xy' + 4y = 10x$            |

A. Najděte obecné řešení soustavy:

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|----|--------------------------------------|----|------------------------------------|----|---|
| 1. | $x' = 10x - 6y$<br>$y' = 18x - 11y$  | 4. | $x' = -5x - 10y$<br>$y' = 5x + 5y$ | 7. | $x' = 2x - y + 3z$<br>$y' = -2x + y + 5z$<br>$z' = -x - y + 6z$ |
| 2. | $x' = -6x + 8y$<br>$y' = -4x + 6y$   | 5. | $x' = -5x + 4y$<br>$y' = -x - y$   | 8. |   |
| 3. | $x' = -12x - 8y$<br>$y' = 20x + 12y$ | 6. | $x' = -2x + y$<br>$y' = -4x + 2y$  |    | $x' = y - z$<br>$y' = -y + z$<br>$z' = x - z$                   |