

1.1

$$\#24 \quad y_1 = x^{-1}, \quad y_1' = -x^{-2} \quad y_1'' = 2x^{-3} \quad y_1''' = -6x^{-4}$$

$$x^3 y_1''' + 2x^2 y_1'' - x y_1' + y_1 = 0$$

$$-6x^{-1} + 4x^{-1} + x^{-1} + x^{-1} = 0$$

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$$y_2 = x, \quad y_2' = 1, \quad y_2'' = y_2''' = 0$$

$$-x(1) + x = 0$$

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$$y_3 = x \ln(x) \quad y_3' = x \cdot \frac{1}{x} + (1) \ln(x)$$

$$y_3'' = \frac{1}{x} \quad y_3''' = -\frac{1}{x^2}$$

**works**

$$x^3 \left(-\frac{1}{x^2}\right) + 2x^2 \left(\frac{1}{x}\right)$$

$$-x(1 + \ln(x)) + x \ln(x) = 0$$

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$$y_p = 4x^2 \quad y_p' = 8x \quad y_p'' = 8$$

$$y_p''' = 0$$

$$x^3(0) + 2x^2(8) - x(8x) + 4x^2 = 12x^2$$