I. Решите операционным методом следующее линейное неоднородное дифференциальное уравнение:

1) $y''-2y'+y=\sin t,\quad y(0)=0,\ y'(0)=1$
2) $y'''-y'=t,\quad y(0)=y'(0)=0,\ y''(0)=1$
3) $y''+2y'+5y=1,\quad y(0)=1,\ y'(0)=0$
4) $y'''+y'=2,\quad y(0)=y''(0)=0,\ y'(0)=1$
5) $y''+y'=\cos t,\quad y(0)=0,\ y'(0)=1$
6) $y''+4y'=\sin t,\quad y(0)=0,\ y'(0)=1$
7) $y''-4y'=t-1,\quad y(0)=1,\ y'(0)=-1$
8) $y''-y=\sin t,\quad y(0)=0,\ y'(0)=1$
9) $y''+y=t,\quad y(0)=1,\ y'(0)=2$
10) $y''-5y'+6y=e^{-t},\quad y(0)=0,\ y'(0)=1$
11) $y''+y=3t+1,\quad y(0)=0,\ y'(0)=1$
12) $y''-y=-t^2-2t,\quad y(0)=0,\ y'(0)=2$
13) $y''-4y'=8t-2,\quad y(0)=5,\ y'(0)=4$
14) $y''+y=3-2t,\quad y(0)=4,\ y'(0)=-1$
15) $y''-y'=-2,\quad y(0)=0,\ y'(0)=1$
16) $y''-y'-2y=e^{t},\quad y(0)=0,\ y'(0)=0{,}25$
17) $y''-4y'+3y=e^{2t},\quad y(0)=0,\ y'(0)=3$

II. Найдите решение задачи Коши для системы дифференциальных уравнений операционным методом:

1) $\begin{cases} x'=x-2y \\ y'=x-y \end{cases},\quad x(0)=1,\ y(0)=0$
2) $\begin{cases} x'=x+y \\ y'=8x+3y \end{cases},\quad x(0)=0,\ y(0)=2$
3) $\begin{cases} x'=x-4y \\ y'=x+y \end{cases},\quad x(0)=0,\ y(0)=1$
4) $\begin{cases} x'=x+y \\ y'=-x-y \end{cases},\quad x(0)=-2,\ y(0)=1$
5) $\begin{cases} x'=2x-y \\ y'=x+4y \end{cases},\quad x(0)=1,\ y(0)=0$
6) $\begin{cases} x'=-x+y \\ y'=-2x+y \end{cases},\quad x(0)=0,\ y(0)=1$
7) $\begin{cases} x'=3x+y \\ y'=-x+y \end{cases},\quad x(0)=3,\ y(0)=0$
8) $\begin{cases} x'=3x+y \\ y'=-x+5y \end{cases},\quad x(0)=0,\ y(0)=2$
9) $\begin{cases} x'=5x-y \\ y'=x+3y \end{cases},\quad x(0)=1,\ y(0)=0$

10) $\begin{cases} x' = 12x - 5y \\ y' = 5x + 12y \end{cases}$, $x(0) = 1,\ y(0) = 1$

11) $\begin{cases} x' = x - y \\ y' = 4x - 3y \end{cases}$, $x(0) = 3,\ y(0) = 0$

12) $\begin{cases} x' = -x - 10y \\ y' = 2x + 3y \end{cases}$, $x(0) = 7,\ y(0) = -1$

13) $\begin{cases} x' = 3x - y \\ y' = x + 5y \end{cases}$, $x(0) = 2,\ y(0) = 0$

14) $\begin{cases} x' = -2x - 5y \\ y' = x \end{cases}$, $x(0) = 7,\ y(0) = -1$

15) $\begin{cases} x' = x - 2y \\ y' = 2x - 3y \end{cases}$, $x(0) = 0,\ y(0) = 1$

16) $\begin{cases} x' = x + y \\ y' = -4x + y \end{cases}$, $x(0) = 1,\ y(0) = 2$

17) $\begin{cases} x' = -3x + 4y \\ y' = -x + y \end{cases}$, $x(0) = 0,\ y(0) = 3$