http://cifra.studentmiv.ru/tau-1-2-zadanie/

Передаточные функции типовых элементарных звеньев

Задание

1. Заполните таблицу указанной ниже формы дифференциальными уравнениями и передаточными функциями типовых звеньев.

	П	А	ИИ	РИ	ИД	РД
ДУ						
W(p)						

2. Определите тип звена и его параметры по заданному дифференциальному уравнению.

№	Дифференциальное уравнение
1	$25\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}+5x_{\text{ВЫХ}}(t)=50x_{\text{ВХ}}(t)$
2	$400\frac{dx_{\text{ВЫХ}}(t)}{dt}+10x_{\text{ВЫХ}}(t)=8\int_0^t x_{\text{ВХ}}(t)dt$
3	$\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}=50x_{\text{ВХ}}(t)$
4	$5\frac{dx_{\text{ВЫХ}}(t)}{dt}+100x_{\text{ВЫХ}}(t)=5\frac{dx_{\text{ВХ}}(t)}{dt}$
5	$8\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}=72x_{\text{ВХ}}(t)$
6	$100\frac{dx_{\text{ВЫХ}}(t)}{dt}+5x_{\text{ВЫХ}}(t)=10x_{\text{ВХ}}(t)$
7	$10\frac{dx_{\text{ВЫХ}}(t)}{dt}+10x_{\text{ВЫХ}}(t)=50\int_0^t x_{\text{ВХ}}(t)dt$
8	$5\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+100\frac{dx_{\text{ВЫХ}}(t)}{dt}=50x_{\text{ВХ}}(t)$
9	$3\frac{dx_{\text{ВЫХ}}(t)}{dt}+30x_{\text{ВЫХ}}(t)=300x_{\text{ВХ}}(t)$
10	$6\frac{dx_{\text{ВЫХ}}(t)}{dt}+18x_{\text{ВЫХ}}(t)=0{,}18\frac{dx_{\text{ВХ}}(t)}{dt}$
11	$600\frac{dx_{\text{ВЫХ}}(t)}{dt}+10x_{\text{ВЫХ}}(t)=54\int_0^t x_{\text{ВХ}}(t)dt$

12	$5\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}=200x_{\text{ВХ}}(t)$
13	$9\frac{dx_{\text{ВЫХ}}(t)}{dt}+18x_{\text{ВЫХ}}(t)=0,9\frac{dx_{\text{ВХ}}(t)}{dt}$
14	$55\frac{dx_{\text{ВЫХ}}(t)}{dt}+11x_{\text{ВЫХ}}(t)=110x_{\text{ВХ}}(t)$
15	$6\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+12\frac{dx_{\text{ВЫХ}}(t)}{dt}=48x_{\text{ВХ}}(t)$
16	$100\frac{dx_{\text{ВЫХ}}(t)}{dt}+10x_{\text{ВЫХ}}(t)=5000\int_0^t x_{\text{ВХ}}(t)dt$
17	$40\frac{dx_{\text{ВЫХ}}(t)}{dt}+4x_{\text{ВЫХ}}(t)=88x_{\text{ВХ}}(t)$
18	$35\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+14\frac{dx_{\text{ВЫХ}}(t)}{dt}=70x_{\text{ВХ}}(t)$
19	$7\frac{dx_{\text{ВЫХ}}(t)}{dt}+35x_{\text{ВЫХ}}(t)=0,35x_{\text{ВХ}}(t)$
20	$2\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}=5x_{\text{ВХ}}(t)$
21	$500\frac{dx_{\text{ВЫХ}}(t)}{dt}+10x_{\text{ВЫХ}}(t)=0,5\frac{dx_{\text{ВХ}}(t)}{dt}$
22	$10\frac{dx_{\text{ВЫХ}}(t)}{dt}+50x_{\text{ВЫХ}}(t)=100\int_0^t x_{\text{ВХ}}(t)dt$
23	$8\frac{dx_{\text{ВЫХ}}(t)}{dt}+40x_{\text{ВЫХ}}(t)=4x_{\text{ВХ}}(t)$
24	$3\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+30\frac{dx_{\text{ВЫХ}}(t)}{dt}=60x_{\text{ВХ}}(t)$
25	$2,5\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}=50x_{\text{ВХ}}(t)$
26	$90\frac{dx_{\text{ВЫХ}}(t)}{dt}+4,5x_{\text{ВЫХ}}(t)=0,45x_{\text{ВХ}}(t)$

27	$10\frac{dx_{\text{ВЫХ}}(t)}{dt}+50x_{\text{ВЫХ}}(t)=500\int_0^t x_{\text{ВХ}}(t)dt$
28	$5\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}=5x_{\text{ВХ}}(t)$
29	$\frac{dx_{\text{ВЫХ}}(t)}{dt}+55x_{\text{ВЫХ}}(t)=11x_{\text{ВХ}}(t)$
30	$5\frac{dx_{\text{ВЫХ}}(t)}{dt}+10x_{\text{ВЫХ}}(t)=20\frac{dx_{\text{ВХ}}(t)}{dt}$
31	$9\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+90\frac{dx_{\text{ВЫХ}}(t)}{dt}=18x_{\text{ВХ}}(t)$
32	$45\frac{dx_{\text{ВЫХ}}(t)}{dt}+9x_{\text{ВЫХ}}(t)=27x_{\text{ВХ}}(t)$
33	$100\frac{dx_{\text{ВЫХ}}(t)}{dt}+20x_{\text{ВЫХ}}(t)=500\int_0^t x_{\text{ВХ}}(t)dt$
34	$7\frac{dx_{\text{ВЫХ}}(t)}{dt}+7x_{\text{ВЫХ}}(t)=70x_{\text{ВХ}}(t)$
35	$8\frac{dx_{\text{ВЫХ}}(t)}{dt}+8x_{\text{ВЫХ}}(t)=4\frac{dx_{\text{ВХ}}(t)}{dt}$
36	$6\frac{dx_{\text{ВЫХ}}(t)}{dt}+36x_{\text{ВЫХ}}(t)=180x_{\text{ВХ}}(t)$
37	$25\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+10\frac{dx_{\text{ВЫХ}}(t)}{dt}=50x_{\text{ВХ}}(t)$
38	$7\frac{d^2x_{\text{ВЫХ}}(t)}{dt^2}+700\frac{dx_{\text{ВЫХ}}(t)}{dt}=70x_{\text{ВХ}}(t)$
39	$8\frac{dx_{\text{ВЫХ}}(t)}{dt}+80x_{\text{ВЫХ}}(t)=4\frac{dx_{\text{ВХ}}(t)}{dt}$
40	$6\frac{dx_{\text{ВЫХ}}(t)}{dt}+360x_{\text{ВЫХ}}(t)=180x_{\text{ВХ}}(t)$